The Bulletin

# of the

American Association of Nurse Anesthetists

NOVEMBER
1944

VOLUME XII NUMBER 4

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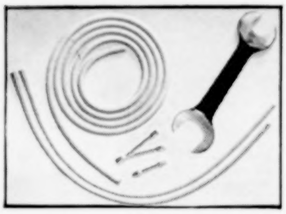

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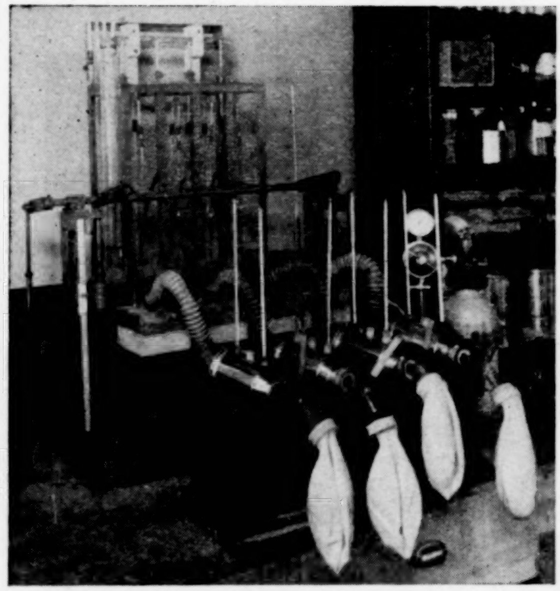

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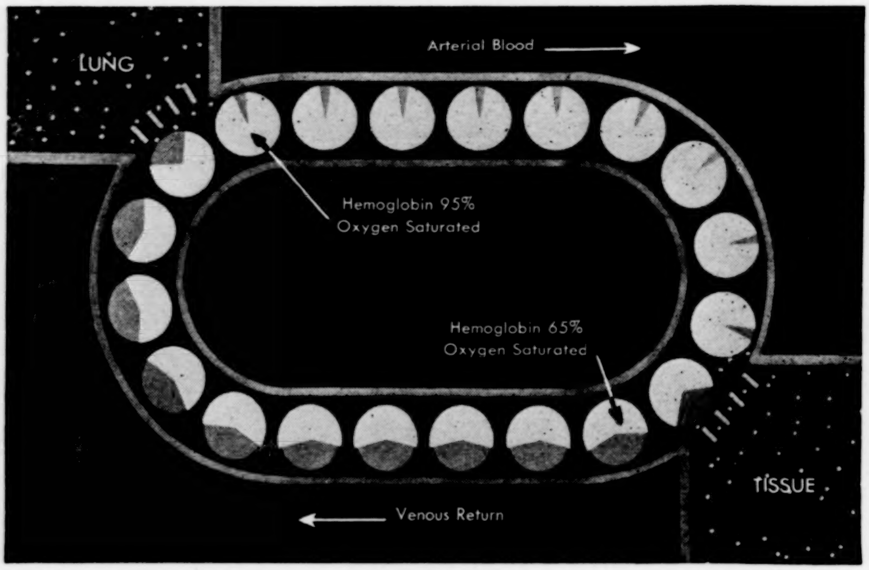
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WHAT MAKES ANESTHESIA?

TORALD SOLLMANN, M.D.
Dean Emeritus, Medical School, Western Reserve University, Cleveland, Ohio

Read at the annual meeting of the American Association of Nurse Anesthetists held in Cleveland, Ohio, October 2-5, 1944.

As practical anesthetists you aim to abolish the pain of surgical operations. For this you employ a variety of agents in a variety of ways, selected to produce an adequate result with a minimum of disturbance, and with the least danger to the patient. You know more about this clinical practice of anesthesia than I can justly pretend to know; and about the scientific side I shall tell you nothing new, probably nothing that you do not already know. I shall be satisfied if I succeed in setting this knowledge in a somewhat new light that may prompt you to think, and help you to a renewed interest in the subject.

The practice of clinical anesthesia is founded upon scientific observation and experimentation, and depends on these for its progress. It may be, indeed it could be, reduced to relatively simple rules and routines; but back of these lies the scientific inquiry from which they took their start, from which all progress must take its start. You may be a good practical anesthetist without any conception of this scientific background; you will probably be a better anesthetist if you do know somewhat of the fundamentals that make the machine go. What any of us know is little enough; we wish that we might know more, and we shall not be content until we do know more.

Of course we all know what anesthesia is—or do we? Literally, it means absence of sensation. This could be attained in greatest perfection by killing the patient. Evidently that is not what we mean. We wish to keep the patient alive, we only wish absence of pain; in fact we generally prefer that sensations return when the occasion is past. The action must therefore be "reversible." There are agents that dull pain without removing other sensations. Morphine, and the confusion stage of inebriants, have much analgetic action; but if we abolish all pain, other sensations go along, so that really effective measures for prevention of all pain also destroys all sensations—they are truly anesthetic. Sensations may be abolished by blocking their conduction in the peripheral nerves, or by blocking their reception in the brain. This constitutes the division into local and central anesthetics. The two groups are distinct not only in the location, but in the mechanism of their attack; but they have common features and we may hope that each will throw some light on the other.

Local anesthetics would seem to be more easily studied, as the structure and function of the nerve fibers appear so much simpler than those of the nerve cells. In fact, however, we know less about the mechanism of the local than of the central anesthetics. The obvious suggestion is that the local agents dull the action of the nerve fibers either by interfering with their metabolism directly, or by disturbing the ion exchange and electron potential; or both in different cases, or perhaps in the same case. The anesthetic action of cooling the nerves offers tempting analogies for slowed metabolism. The intricacies of the enzyme activations of oxidative metabolism furnish wide possibilities for chemical interference, which should be investigated. They would pass away when the concentration of the interfering drug falls, provided that interference was not too prolonged or too profound. With typical local anesthetics, such as procaine, the reversibility seems to hold for all reasonable concentrations.

The variety of local anesthetic agents is impressive. Many are merely variations of a much smaller number of unrelated chemical types, but these types are still quite numerous. So far, the chemical structure has not thrown any clear light on the mechanism of action. From a practical standpoint, the selection of these agents depends almost altogether on the empirical determination of their properties, such as anesthetic potency, penetration and duration on the one hand; local injury and systemic toxicity on the other hand.

Agents that depress through central action may be grouped into analgetics, sedatives, and anesthetics. Analgetics are agents that dull pain without having much, if any effect on other sensations, at least with ordinary doses. They comprise a variety of substances which probably differ materially in chemical and physical properties and presumably in manner of action. Some tend to render the subject inattentive to pain, generally by causing confusion or inebriation of various kinds, what is generally conceived as narcotic action; for instance, morphine, scopolamine, or the intoxicant stage of the inhalation anesthetics. Others dull cerebral activity in general; such is the normal effect of the aliphatic hynotics and of bromide. The "coal tar" analgetics wipe out certain kinds of pain without any other manifest action on sensation and cerebration. Increase of magnesium concentration abolishes all nervous activity, as do lipolytic agents.

Practically all the typical centrally acting anesthetics belong to the lipolytic group. This means literally that they dissolve fats, and therefore that they are soluble in fats; but as all cells are bathed in watery fluid, no agent can act upon them unless it is also soluble in water. The distinguishing solubility feature of lipolytic narcotics is that they are relatively more soluble in lipids or fats than in water; they have a relatively high partition coefficient oil/water. All substances that have a high partition coefficient are potentially narcotic, they depress the functional activity of all cells, and may be used to produce general anesthesia provided that they are sufficiently soluble in water to be carried in the blood, and provided that they do not have some other action that is more potent and more toxic. The latter excludes the aromatic hydrocarbons, so that the practical centrally acting lipolytic anesthetics belong chiefly to the aliphatic series, derived from methane and its homologues. Another property that is of practical importance is the vapor tension—whether the substance is a gas at ordinary temperature; or if it is a liquid or solid, whether it can be evaporated so as to give effective concentrations in the air. If so, it may be administered by inhalation; if not, it may be administered by mouth or by injection. This makes a great deal of difference in the practical administration; in the promptness and duration of action; and in the danger and safety.

The parallelism of solubility partition coefficient and anesthetic action is so universal that it seems that they must be in some way connected, but there is also another parallelism with the surface affinity, the tendency of the substance to accumulate at the boundary layer of the solution and there to lower the surface tension. This may be merely another way of stating the same facts; for substances that are relatively little soluble in water tend to go to the surface of the solution; and the more so if this surface is in contact with fat molecules. A "theory of anesthesia" may therefore be stated in terms either of solubility partition coefficient or of surface affinity. The correlations would diverge only for substances which are poorly soluble in fat as well as in water, and these do not seem to be practically important. The question does become important, however, when we try to understand how these narcotics act. The fact that anesthetic potency varies parallel to either of these properties is not an explanation of the action. It explains only how these substances reach relatively high concentrations on the surface of the cells when these are exposed to the watery solution of the agent. It is here that the puzzle really starts. What do these agents do when they get there? Some hints are fairly plain.

In the first place, the fact that the anesthetic property has little relation to the chemical reactivity of the substances indicates that it is not directly chemical. Second, the promptness of the action, and the promptness with which it may be reversed when the concentration of the anesthetic is lowered, a matter of seconds in gas anesthesia, indicates that the action is at the surface of the cell, rather than in the interior of the cell. This suggests two possibilities: one, based on the conception of lipolytic solubility, assumes that the anesthetic agent dissolves in the lipids of the cell membrane and therefore modifies the properties of the membrane; the other, based on the surface affinity, assumes that the anesthetic itself forms a coherent film. Indeed, one may say that both are bound to happen; what we do not know is their importance in producing anesthesia. At this point, we launch into the cloudy skies of hypothesis, where smoke is the most substantial substance. We may take for granted that changes in the cell boundary membrane will modify its permeability. The most lively exchange through that surface is probably that of the gases, oxygen and carbon dioxide. As energy is produced in the cells chiefly by oxidation, interference with oxygen penetration is a tempting explanation of the decreased activity of the narcosis. However, the anesthetics depress anaerobic processes as well as aerobic; and they inhibit inorganic enzymes which do not involve penetration. These facts would not preclude that interference with oxygen penetration may play a part, or indeed, the major role in cellular narcosis, but in the absence of direct evidence for this explanation, they do render it improbable. On the other hand, there is direct evidence that narcotics alter the permeability to ions, and while these changes are not simple and uniform, any change whatever of ion distribution is bound to alter the electric potential of the cell system, which determines the energy distribution, the colloidal state, and through this the enzyme processes. There is some vagueness about this, which is not altogether satisfying, but at least it poses direct questions which furnish glimpses at possible answers, and indicate opportunities for attacking the problem. The full answer is locked in the future, but we have some keys that may be tried on the locks, and if they fail, the failures should teach us how to try new keys. The solution is chiefly a question of time, and of that master of time—patience.

For the present, it will be helpful to remember that lipolytic agents alter the contact surface of the cells, and therefore upset the normal relation of the cell to its chemical environment; and this amounts to upsetting the normal balance of its life. This results in interference with its normal processes, and thereby in depression of its functions. With proper agents and within proper limits, such a change would be reversible, and normal conditions and normal functions would return when the disturbing agent is removed, provided that the effect is not so violent or so prolonged as to disorganize the cell structure.

Duration of action is therefore a highly important consideration in the choice and employment of an anesthetic, both for safety and for flexibility. Instantaneous response to the wishes of the anesthetist would seem the ideal aim. It is always easy to deepen the anesthesia by administering more of the anesthetic agent, but immediate decrease of anesthesia can be achieved only by the substances that are instantly destroyed, and none of these are practically available; or by the inhalation of substances that can be quickly eliminated through the respiration. Anesthesia by the inhalation of highly volatile and relatively indifferent substances, such as nitrous oxide, would meet this requirement perfectly, but it has the disadvantage of lacking steadiness; it is subject to sudden ups and downs from accidental variations, so that the patient may be up and out of anesthesia in one moment, and down and out of life in the next. This demands very close attention and very rapid decision and action by the anesthetist, with little time to inquire into the causes of the changes, so that some mistakes of judgment are inevitable.

It is therefore desirable to build up a back-log of partial narcosis, by agents of relatively long duration, which are not subject to the sudden ups and downs; and to use the volatile anesthetics to top off the anesthesia and to temper and refine it within the needed range, with much less risk of passing out into the beyond in either direction. The "basal narcosis" is a sound concept in theory as well as in practice. It started with morphine, later supplemented by scopolamine, and found a rich and varied expansion in the barbiturates, with as many shades as lipstick, to meet every taste, complexion, and whim.

The other broad factor which modifies the fundamental concept of lipolytic narcosis consists in the side-actions; actions that have nothing to do with the lipolytic action. Instances of this are the mechanical exclusion of oxygen in full-strength nitrous oxide; the physico-chemical precipitation of muscle proteins by chloroform, resulting in cardiac disturbances; the local irritation of high concentration ether vapor, leading to increased mucous secretion and potentially to aspiration pneumonia. One must be careful not to oversimplify the actions of drugs in the instinctive desire for unification.

By now, we have wandered quite a while, and it may be well to look back to make certain that we have not lost ourselves. We started with the question: "What makes anesthesia?" and we have not arrived at any very definite answer, and perhaps or probably there is none, except that there are several ways to skin a cat, and several ways to depress function—why not? But the majority of agents that produce systemic anesthesia, and those with the broadest field of usefulness, have one property in common

—a higher affinity for lipid substances than for water, and therefore a tendency to concentrate on the surface of watery systems, and therefore on the surface layer of cells. This brings the substances to the cells, and they probably act primarily on the cell surface, altering its permeability. The surface-action causes the cell to react promptly to changes in the concentration of the agent in the blood, and explains rapid recovery when the blood concentration is lowered. The controllability of anesthesia depends on the practicability of controlling the blood concentration which is therefore of primary practical concern to the anesthetist. Side-actions may depend on quite different mechanisms and must be learned as such. These two together, the control of the concentration and a knowledge of side-actions, make up the greater part of the art of anesthesia. Personal experience, close observation, and sound judgment are indispensable in this art, as well as theoretical knowledge. It is the artist who makes the picture, not the theory of color; but a good artist can make a better picture if he knows what science teaches about color.

SHOCK AND HEMORRHAGE

WILLIAM E. ABBOTT, M.D.

From the Department of Surgery, Wayne University College of Medicine, and the Detroit Receiving Hospital, Detroit, Michigan

Read at the annual meeting of the American Association of Nurse Anesthetists held in Cleveland, Ohio, October 2-5, 1944.

A tremendous volume of literature has accumulated over the past thirty years on the subject of shock and hemorrhage, and any attempt to summarize it or draw definite conclusions would be an endless task. Since summaries of the work done prior to 1942 are available in the reviews by Wiggers[1] and Harkins[2], this paper will deal largely with the more recent impressions and contributions.

Much confusion in the literature results from the fact that all conditions which cause a lowering of the blood pressure, which result in the symptom complex (reduced blood flow, oligemia, and anoxia known as shock or peripheral circulatory collapse, are often discussed without trying to define or classify and subdivide the condition. The cause of shock has therefore been explained and argued by many investigators when undoubtedly two or more distinct conditions existed.

Thus an acceptable classification should be of prime importance. Such a classification can be divided into five main categories, and is shown in Table I.

Table I. Classification of Shock

1. Neurogenic shock. Thought to be due to decrease in the vascular tone (vasodilatation) and a reflex inhibition of the heart.
2. Hematogenic shock (traumatic shock). Shock due to an increased local capillary permeability and vasoconstriction.
3. Dehydration shock. Shock due to

an electrolyte and fluid loss or alteration.

4. Vasogenic shock (toxic or anaphylactoid shock). This is caused by substances such as histamine and other foreign proteins, or drugs such as nitrites, mercuric chloride, et cetera. There is usually a generalized increased vascular permeability.
5. Hemorrhagic shock. Caused by the loss of blood (internal or external bleeding).

This classification is not entirely original. Blalock[3] in his monograph on shock discusses most of the aforementioned conditions.

That there are examples of each of the five types of shock cannot be denied. The work of Phemister[4, 5] has more recently clarified neurogenic shock. Blalock[3], Fine and Seligman[6] and others have done considerable work on hematogenic shock, while Moon[7, 8] has well summarized the work on vasogenic shock, and Wiggers and Werle[9] have recently reported studies dealing with hemorrhagic shock. The work of Davis[10] and of Nadal, Pedersen and Maddock[11] have stressed the importance of dehydration shock.

By the aforementioned classification I do not mean to imply that these five types may not overlap. Frequently after an injury, or an operation, a neurogenic reaction is encountered, and later hematogenic shock occurs. Likewise in the usual injury seen in a hospital emergency ward, or on the battlefield, blood loss is often present, and coexisting hematogenic shock.

The previous classification may be clarified by Table II. This table shows what types of shock occur under the five aforementioned general headings:

*Table II. The Subclassification of Shock**

1. Neurogenic shock
    - Fainting
    - Syncope
    - Spinal anesthesia—2, 3
    - Pancreatitis and perforated ulcer—2, 3, 4
2. Hematogenic shock
    - Burns—3
    - Fractures—1, 5
    - Tissue trauma—1, 5.
    - Surgery—1, 3, 5
    - Thrombosis—3
3. Dehydration shock
    - Intestinal obstruction—1, 2
    - Vomiting
    - High intestinal intubation
    - Adrenal insufficiency (Addison's disease)
    - Heat exhaustion
    - Diabetic coma—4
    - Diarrhea (cholera, typhoid)
    - Biliary, pancreatic or intestinal fistula
4. Vasogenic shock
    - Infection (peritonitis, et cetera)—2, 3
    - Anaphylactoid reactions
    - Drugs, poisons
5. Hemorrhagic
    - Any condition where hemorrhage occurs—1, 2, 3

In order to be more explicit in defining exactly what one is dealing with, it is best when discussing a state of peripheral vascular collapse to say "Shock due to intestinal obstruction, burn shock, hemorrhagic shock," or if two or more conditions exist to state "Postoperative shock complicated by dehydration and hemorrhage."

In discussing the causes for, or initiating factors of shock, it thus no longer presents too great an argument as to the different theories (local fluid loss, toxic substance, nervous factor, adrenal insufficiency, et cetera). Practically each theory thus does produce one form of shock. Some of the proposed theories (elevated plasma potassium concentration, acapnia, anoxia, et cetera) are probably, as a rule, a result of a state of shock and by their presence may prolong the undesirable effects. In fact, if such states are produced in the normal animal, shock may result, but clinically the injury or poisoning usually occurs first with the resulting anoxia, decreased alkali reserve, or elevated plasma potassium concentration.

---

* As previously stated, there is often a great deal of overlapping, especially in clinical shock and thus the above entities are put under what is considered as the main heading and the numbers following are employed to show what other type of shock may also coexist.

The physiological changes encountered in shock and hemorrhage have recently been reviewed. Monn[8] states that in shock and hemorrhage one of the early changes is in the sympathoadrenal activity. This produces at first a stimulation of the myocardium (noted by a strong and rapid pulse), and a peripheral vasoconstriction which in turn leads to a reduced volume flow, ischemia (pallor) and a loss of tissue turgor. A contraction of the spleen occurs with a discharge of reservoir blood and a dilatation of the pupils and often perspiration. A declining temperature is noted and an increased respiratory rate. As shock progresses, thirst may become intense and a fall in blood pressure occurs.

Moon[7,8] also has repeatedly emphasized the pathological changes noted in shock and states that they consist of "capillary atony, hyperemia, stasis, edema, and ecchymosis in the lungs, mucosae, serous surfaces, and in the liver and kidneys." These changes are not noted in hemorrhage, but rather pale, dry tissues are the characteristic findings.

Alterations in the blood concentrations of various solutes in shock has been repeatedly demonstrated. In Table III the usual changes are recorded.

Table III. Blood Alterations in Shock

Increased

Non-protein nitrogen
Blood urea nitrogen
Creatinine
Amino acid level
Potassium
Red cell concentration

Decreased

Serum calcium
Plasma protein
" albumin
" chloride
" sodium
" carbon dioxide content
" oxygen
" volume

Many of the alterations reported are inconstant and not of great significance. It has been stated that the plasma chloride level decreases[12]. Slightly lower levels may occur, but in our experience when a definite decrease occurs, it usually represents a change which is noticeable after a large intake of water, or in the post shock period (Tables IV, V, VI, VII, VIII). Selye[12], Ely[13], and Glenn, Muus, and Drinker[14] review most of the blood alterations which are said to occur, but it should be remembered that such alterations are only present in moderate or severe shock and then may often be absent if kidney function and nutrition can be maintained and adequate treatment given.

In hematogenic shock and shock resulting from dehydration, there is as a rule hemoconcentration (rising hematocrit, red cell count and hemoglobin), especially if the shock is abrupt in onset. In the same condition, the plasma protein concentration usually is around normal or slightly below. Some workers have reported a transient rise, and this may occur, although the concentration is usually

TABLE IV. M.McE. 30 yr. ♀ Total Burn 32% (3rd degree 2%)

Time Post Burn	Hematocrit	Plasma Protein conc. gm. per 100 cc.	Plasma Albumin conc. gm. per 100 cc.	Blood Urea Nitrogen mg. per 100 cc.	Plasma Chloride m.eq. per liter of plasma	Dextrose mg. per 100 cc.	Treatment
3 Hrs.	51.2	6.8	4.7	8	107.1	150	Plasma 700 cc.
7½ Hrs.	51.5						Plasma 1500 cc.
20 Hrs.	49.7	6.1	3.7	13	106.0	95	
44 Hrs.	46.2	5.7	3.0	9	99.6	100	
7 Days	39.0	5.8	3.8	12	92.3	166	
15 Days	39.0	5.4	2.8	11	100.1	80	

TABLE V. D.T. 49 yr. ♂ Alcoholic Total Burn 45% (3rd degree 20%)

Time Post Burn Hrs.	Hematocrit	Plasma Protein conc. gm. per 100 cc.	CO_2 Content Vol. per cent	Plasma Chloride m.eq. per liter of plasma	Treatment	
4	42.5	6.7	48	112.5	Plasma 1000 cc	Oral Electrolyte Solution
13½	50.4	6.1	45	97.6	Plasma 500 cc	
31½	50.6	5.8		97.0	Blood 1000 cc.	
51	48.0	6.2	54	96.0		
59	44.4					

TABLE VI. J.J. 46 yr. ♂ Total Surface Area Burned 12½%

Time Post Burn	Hematocrit	Plasma Chloride m.eq. per liter of plasma	Lactic Acid mg. per 100 cc. of plasma	CO_2 Content Vol. per cent	Treatment
2½ hours	43.6	103.4	26.4	45	445 cc. of blood. Patient took 6000 cc. of NaCl-$NaHCO_3$ solution in first 24 hours and 3000 cc. in second 24 hours.
5 hours	46.5				
7½ hours	48.7				
19 hours	48.5	101.9		48.6	
67 hours	45.5			62.9	
4½ days	43.5	91.5	26.4		
10 days	42.6	88.1	26.0		
20 days	43.2	100.0			

TABLE VII. T.A. 14 yr. ♂ Total Surface Area Burned 14% (3rd degree 1%)

Time Post Burn	Hematocrit	Plasma Chloride m.eq. per liter of plasma	CO_2 Content vol. per cent	Treatment
1 hour	46.0	103.1	51.7	Blood 800 cc.
6 hours	45.0			
9 hours	51.6		53.2	Blood 160 cc. Patient took orally 5000 cc. of NaCl-$NaHCO_3$ solution in first 24 hours and 3000 cc. in next 24 hours.
14½ hours	50.6			
25 hours	50.4			
2 days	48.9			
4 days	50.9	95.8	53.0	
14 days	51.4			
24 days	49.7	104.3		

TABLE VIII. D.B. 16 yr. ♀ Total Burn 63% (3rd degree 20%)

Hours After Burn	Hematocrit	Blood Urea Nitrogen mg. per 100 cc.	Plasma Chloride m.eq. per liter of plasma	CO_2 Combining Power Vol. per cent	Treatment
1	48.5	17.2	106.7	42	2270 cc. plasma
9	59.8		100.0	47	1450 cc. plasma
17	53.7		102.8	48	
34	44.5	13.0	104.5	43	900 cc. whole blood
58	38.5		103.3	48	
80	35.0	13.1	106.2	45	

not above the normal range. If dehydration occurs acutely, producing shock, an elevated plasma protein concentration is encountered. As the condition persists, however, the protein concentration falls and may approach a normal or subnormal level. This is a result of malnutrition[15] and thus often makes such determinations unreliable as quantitative measures.

Hemorrhagic shock, because of the loss of red blood cells as well as plasma does not show the above changes except when dehydration or hematogenic shock are superimposed. Rather, a fall in the hematocrit and plasma protein concentration is frequently noted because of dilution. Phemister[4,5] reports an early hemodilution with an increase in the blood volume and a later concentration in prolonged neurogenic shock.

In the recent work of Evans[16], the group of shocked patients which he studied rarely showed hemoconcentration. If the types of injuries in his cases are noted, it is evident that some actual blood loss probably occurred as well as hematogenic shock. In postoperative shock, Coller, Crooks, and Iob[17] have recently stressed the importance of the loss of whole blood. They point out that actual determinations show that the amount of blood lost almost always exceeds that estimated by the surgeon. Thus in postoperative shock and injuries such as compound fractures and gunshot wounds, the type of shock that exists is often a combination of neurogenic, hematogenic, dehydration, and hemorrhagic shock. Hence, it is no wonder that the chemical changes encountered are often very confusing and unreliable.

In a recent discussion on burn shock[18] it was stated that treatment can be carried out by following changes in the hematocrit (100 cc. of plasma for every point the hematocrit is above 45). However, in our study of burned patients such alterations often did not parallel the degree of shock; hence we have given up the idea of treating patients by a standardized method or rule. Tables IV, V, VI, VII and VIII show some of the changes present in burned patients treated with plasma and with whole blood. You will note that when whole blood was given, an electrolyte solution was also taken by mouth. Hemoconcentration was not marked; in fact, on occasions a dilution occurred. Other formulas have been advocated by Elkington, Wolff and Lee[19], Black[20], Power, Pedersen and Maddock[21], and Jenkins, Schafer and Owens[22] for guiding the surgeon in the treatment of shock and dehydration, but recent work[23],[24] has demonstrated the inadequacy of these "clinical rules."

Unpublished data[25] have shown that the circulation is greatly altered in shock, and that the findings in various types of shock were quite different.

Tables IX, X, XI, and XII show some of the chemical alterations that occur in animals shocked by different methods. In this study observations of the smaller vessels in the sclera of the eye (and occasionally in the omentum) were made by means of a dissecting microscope. In all animals slowing of the circulation and some clumping of cells or sludge, as it is described by Knisely[26], occurred But in the animals where dehydration alone existed (pyloric obstruction and intraperitoneal injection of 5 per cent glucose) the sludge was much more severe and occurred earlier, often with many of the capillaries plugging up completely.

Although hemoconcentration was often as great in the animals which demonstrated hematogenic shock, this

TABLE IX. Blood Changes following an Experimental Burn

Hours Post Burn	Hematocrit	Plasma Protein conc. gm. per 100 cc.	Plasma Chloride m.eq. per liter of plasma	Observations of Small Vessels
Control	37.5	6.12	110.1	Normal
Dog burned				
2/3	51.0			Rapid flow of blood. Some clumps (sludge evident but not severe). Viscosity not noticeably increased.
2	59.1	6.60	112.0	
3	61.5	6.82		
4½	67.5	6.52	109.9	
6½	67.4	6.20		
9½	67.5	6.10	109.2	

TABLE X. Blood Changes during Dehydration

Hours After Dehydration	Hematocrit	Plasma Protein conc. gm. per 100 cc.	Plasma Chloride m.eq. per liter of plasma	Observations of Small Vessels
Control	41.8	6.36	108.0	Normal
Intraperitoneal injection of 5% Dextrose				
4	66.8	9.15	88.0	Sludge marked. Circulation slowed.
8½	69.1	10.22	82.0	
10½	73.0			Sludge severe. Stasis marked, viscosity increased.

TABLE XI. Blood Changes following Pyloric Obstruction

Hours Post Obstruction	Hematocrit	Plasma Protein conc. gm. per 100 cc.	Plasma Chloride m.eq. per liter of plasma	Observations of Small Vessels
Control	41.8	6.70	105.2	Normal
Pylorus obstructed				
28	57.0	8.92	96.0	Sludge present Flow normal.
31	56.0	9.09		
47	58.2	9.19	87.6	Sludge increasing. Occasional plugging of capillaries.
54	57.0	9.36	82.0	
71	59.6	10.31		
76	59.4	10.34	78.0	Sludge and stasis severe. Viscosity increased.
78	59.8	10.34		

Death occurred ten minutes after last sample.

TABLE XII. Blood Alterations following Intestinal Strangulation and Hemorrhage

Hours After Intestinal Strangulation	Hematocrit	Plasma Protein conc. gm. per 100 cc.	Plasma Chloride m.eq. per liter of plasma	Observations of Small Vessels
Control	46.3	6.97	108.3	Normal
Intestinal strangulation with hemorrhage				
4	44.7	6.97	106.2	Some clumps but blood flow good. Viscosity appeared normal.
6	42.7	6.32	105.7	
10	40.7	6.19	103.0	

intermittent and irregular stoppage of the circulation and increased viscosity of the blood seen in the first group of animals was not noted until very late in the experiment when death was imminent. The most apparent difference in the two groups was in the plasma protein and fibrinogen concentration. In the dehydrated dogs an elevation of these two substances was noted with a concomitant fall in the plasma electrolytes, while in the other group the protein, fibrinogen and electrolyte concentration usually remained close to the control level.

Abell and Page[27] have reported similar observations in the smaller blood vessels in burned animals, and have emphasized the vasoconstriction which could be seen microscopically. They believe that this vasoconstriction and sluggish flow inevitably leads to a diminished return of blood to the heart and a failure of the peripheral circulation unless the force and output of the heart is greatly augmented. Similar changes but to a lesser degree were noted by these same workers in tourniquet shock.

That the effective viscosity of the blood in arterioles is not due to a change in the red cell concentration or hematocrit has also been stressed by Darrow[28], and he states that a high red count is not a contraindication to whole blood transfusions. Since a change does not geatly increase the burden of the heart, it would seem that the clumping of cells (sludge) or the vasoconstriction, rather than hemoconcentration *per se* is the important factor in the impaired circulation.

In recent years the use of plasma or plasma substitutes has been advocated rather than the use of whole blood. However, recently in the Army and in many civilian hospitals there is an increasing tendency to employ blood when it can be obtained.

In certain instances plasma possibly may be more beneficial, but in the types of shock which are most frequently encountered whole blood is still preferable. Cournand, Noble, Breed, Lauson, Baldwin, Pinchot, and Richards[30] have stressed the need for hemoglobin, and emphasize the fact that blood substitutes will restore the failing circulation, but not always the failing tissues (anoxia). The fact that the oxygen-carrying power is greatly improved by whole blood should be kept in mind. Also, since it was demonstrated years ago that an anemia occurred following the correction of a state of dehydration[31] or shock[32], whole blood transfusions would seem desirable. That anemia occurs in the convalescent phase of burns and is also a frequent occurence following large plasma transfusions has been apparent in our studies[33]. Recently studies which we made on three young boys who were playing with a 75 millimeter shell when it exploded, emphasized this fact. Only mild shock occurred because of the early institution of therapy, but all three patients showed a marked anemia a week after their injury, although in the first twenty-four hours they received quantities of blood which were almost equivalent to, or greater than, their normal estimated blood volume. The degree of blood loss was quite small in comparison to that received.

Counse, Foisie, Robertson and Aufranc[34] noted in an extensive study on shock that the respirations usually shifted from the thoracic to abdominal type, often with associated irregularities in the rate and depth. They noted that by injecting as little as 50 cc. of a 5 per cent sodium bicarbonate solution intravenously into severely shocked animals a marked improvement in the respirations and general condition occurred. It has been well demonstrated that an acidosis usually occurs in shocked patients and an effort should be made to correct this.

More recently interesting studies by Rosenthal[35], Fox[36], Levine, Huddlestun, Persky and Soskin [37], Allen[38], Warren, Merrill, and Stead[39], and Moyer, Iob, Vaughan and Marty[40] have shown that in the treatment of shocked animals and patients various electrolyte solutions have a place in the therapy. That they can be employed solely as a form of treatment has not been advocated by most of the workers, but that they should be used in conjunction with other forms of therapy seems logical.

Rosenthal[35] first showed that shocked mice (shock produced by the prolonged application of a tourniquet) given an oral physiologic solution of sodium chloride or the same solution intraperitoneally survived longer than when given plasma intravenously. Levine and his group[37] have more recently shown that dogs in which a constant level of hemorrhagic shock was produced, survived in higher rates when treated with whole blood, plus a sodium bicarbonate-glucose solution than when given other forms of therapy. Fox[26] apparently has successfully treated some severely third degree burned patients solely by the oral administration of sodium lactate, and Moyer and his group[40] have shown a high survival rate in severely burned (third-degree, or 80 per cent of body burned) dogs treated with the intravenous injections of whole blood and the oral administration of a sodium chloride sodium bicarbonate solution. Such therapy, when administered by the latter group, proved much superior to intravenous plasma and other forms of treatment.

Allen[38] has also shown good results in combating shock by the injection of very large amounts of intravenous saline in dogs. Warren, Merrell, and Stead[39] in similar experiments which showed comparable results have emphasized the fact that the quantity and pressure of the extracellular fluid compartment is an important factor in determining the size of the plasma volume.

In most of the above experiments the electrolyte solutions have been given orally in large amounts (approximately 10 per cent of the body weight for the first twenty-four hours). The most logical approach thus seems to be a combination of whole blood intravenously plus the oral or intraperitoneal administration of a solution which is essentially isoosmotic with plasma and contains electrolytes in about the same chemical make-up as plasma. The advantage seems definitely to be in the fact that with such replacement therapy not only will the plasma volume be maintained but also the interstitial fluid will be normal in amount.

Some workers[41] have advocated the use of concentrated albumin solution. While such a solution would appear to have beneficial effects (due to the high osmotic pressure exerted by albumin) its greatest value would appear to be as temporary treatment (on the battlefield or in civilian practice because of the ease of administration). The fact that it is effective in small amounts, and blood typing is unnecessary, makes the ease of such a transfusion quite simple and also rapid even under trying circumstances.

The use of other blood substitutes (solutions of pectin, gelatin, gum acacia, hemoglobin, Ringer's, bovine plasma, et cetera, have not shown the beneficial effects of blood, plasma or the oral electrolyte solutions. There have been some favorable reports[42], but probably these solutions should only be employed when the other forms of therapy are not available or the state of shock is mild. Their use temporarily to restore the blood volume while whole blood is being obtained may be of advantage.

The use of oxygen and other supportive therapy[34] is indicated. Experiments in controlled animals[43] have shown that the use of cold may at times be better than heat. It would seem that at least until therapy could be started, this would be of advantage. The use of vasoconstrictor drugs (adrenalin, neosynephrin, et cetera, should largely be reserved for th treatment and prevention of neurogenic shock. In fact, in the other forms of shock, with the exception of anaphylactoid shock, patients may be made worse by the use of such drugs (due to the presence of an already existing vasoconstriction).

In conclusion, the treatment of hematogenic, dehydration, vasogenic, and homorrhagic shock, in the light of our present knowledge, can be summarized as follows:

The best treatment is apparently the *prompt* and *adequate* institution of therapy, so that shock will be minimized and the irreversible phase can be avoided.

Therapy should consist of:

1. *Restoration of the blood volume.*
   (a) Plasma or albumin transfusion.
   (b) If hemoconcentration is not severe, whole blood in moderate amounts is more desirable (due to its increased oxygen-carrying power and the osmotic effect produced by the cells[44]).
2. *Maintenance of the interstitial fluid volume and kidney function.*
   (a) These can probably best be accomplished by supplying a physiologic solution of approximately three parts of sodium to one part of sodium bicarbonate and encouraging the patient to drink up to 10 per cent of his body weight of such a solution in the first day.
   (b) If the oral administration is impractical due to nausea or vomiting or some abdominal disorder (operation, peritonitis, et cetera, a subcutaneous infusion of Hartman's solution (2000-5000) is advisable during the first twenty-four hours.
3. *Nutrition*
   (a) Oral glucose or orange juice (5 to 20 per cent solution) should be given if the patient is able to tolerate it. (This can be added to the electrolyte solution.) During the period of shock the intake of food and especially protein should not be forced. (These conclusions were formulated after doing metabolic studies on burned patients. Also the work of Engel, Harrison, and Long[45] tends to show an elevation of the plasma amino acid level during shock which substantiates this view. It would not appear wise therefore to overload an already overloaded liver and kidneys by feeding additional protein.)
   (b) The administration of the vitamin B complex (especially thiamin 10-15 milligrams) and cevitamic acid (200-400 milligrams) is also desirable.
   (c) During the post-shock period, a high caloric (3000-6000 calories) and high protein (100-150 grams) diet should be given.
4. *General care*
   (a) Prevention of infection.
   (b) Excessive heat or cold should be avoided. Gross elevations or

depressions of body temperature should be promptly treated.

(c) Relief of pain with morphine and other sedatives is desirable but not to the point where respirations are depressed.

(d) The administration of oxygen is of some advantage especially in the severer cases (95 per cent oxygen and 5 per cent carbon dioxide.

(e) Undue trauma and anesthesia should be avoided until the shock is well controlled.

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RECENT PHYSIOLOGICAL STUDIES IN SHOCK[1]

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Many clinicians consider that shock may be defined as a condition in which the patient is stuporous, with depressed reflexes and sensations. The skin and mucous membranes are cold, pale and often moist, the pulse rapid and thready, the blood pressure low and the pulse pressure small, the superficial veins collapsed and the respiration rapid, irregular and shallow.

Shock may be seen in patients after a large hemorrhage, either internal or external, after loss of considerable plasma, as by vomiting or diarrhea, in phosgene poisoning, and in certain types of trauma, and in infectious diseases such as pneumonia and influenza. The common factor in all these seems to be an acute reduction in the amount of blood circulated per minute. Since in most of these conditions the principal factor leading to the decreased cardiac output is a re-

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duction in blood volume, we shall consider first the changes which occur in the body economy as a result of simple loss of blood by hemorrhage.

If in man or an anesthetized experimental animal one slowly but progressively bleeds the subject, at first no detectible alterations are seen. Evidently certain compensatory mechanisms are able to make up for the loss of blood initially. Experimental studies show that this is accomplished principally by reduction in size of the spleen and of other blood reservoirs which empty blood into the general circulation to replace that lost by hemorrhage. These blood reservoirs appear to be able to compensate for a loss of 5 to 15 cc. of blood per kilogram of body weight.

With further loss of blood there occurs a beginning decline of venous pressure in the large arteries leading to the heart, because there is now insufficient blood to fill the circulatory system. As a result of this the cardiac output and arterial pressure begin to decline. The decline in arterial pressure is at first slight because reflexes initiated by the carotid sinus stimulate the heart to beat faster and produce a peripheral vascular constriction, both of which tend to maintain the arterial pressure at normal levels.

As a result of the vasoconstriction and decreased cardiac output there is decreased blood flow and blood pressure in the systemic capillaries which lead to resorption of fluid from the tissue spaces into the blood stream. This mechanism serves to restore in part the loss of blood volume and is at the same time the factor which causes the hemodilution seen during and following hemorrhage. This mechanism may make possible the loss of an additional 10 to 20 cc. of blood per kilogram of body weight before serious symptoms of blood loss appear.

With continuing additional hemorrhage the compensatory mechanisms will reach their maximum, and thereafter the venous pressure, cardiac output and arterial pressure will rapidly decline. Accompanying the fall of arterial pressure there occurs a progressive decline in the utilization of oxygen by the body indicating beginning starvation for oxygen. These changes will be evident when 30 to 50 or 60 cc. of blood per kilogram of body weight have been lost.

When the arterial pressure and oxygen consumption have fallen to low levels the complete picture of clinical shock will be seen. Thus there is the rapid heart rate and low arterial blood pressure already described. The pulse is thready and the pulse pressure narrow because with the rapid heart rate and low venous pressure the heart does not completely fill during diastole and therefore ejects only a small quantity of blood per beat. The coldness and pallor of the skin, indicative of intense vascular constriction, and the sweating often seen in man, are caused by the heightened activity of the sympathetic nervous system reflexly induced by the low arterial pressure. It might be considered that the stupor and decreased reflexes seen in shock are due to some toxic factor, yet even these can be and probably are due to the effects of the decreased blood flow in the brain resulting from the failure of the heart to circulate an adequate quantity of blood.

We may well ask whether, if these phenomena are all due to removal of blood, they can be reverted back to normal by restoration of the withdrawn blood. This has been studied by a number of investigators. If the blood is reinjected within a few minutes after hemorrhage, then even if the arterial pressure has fallen to levels of 30 to 50 mm. Hg. during the hemorrhage, the circulation may be apparently restored to normal. This is only an apparently complete restoration, however. Even with immediate restoration of the withdrawn blood, it will be found that a smaller quantity of blood can be removed at a second hemorrhage than was removed in the first hemorrhage before the arterial pressure drops to dangerous levels, thus indicating that some damage to the compensatory mechanisms has occurred with even a brief period of hypotension.[1]

If a hypotension of 50 to 70 mm Hg has existed for thirty minutes or longer, considerably more blood may have to be reinjected than was lost from the circulation, and even then the arterial pressure may tend to drop again when the transfusion is stopped.

With still lower arterial pressures, and especially with more prolonged periods of hypotension, no amount of blood may serve to restore the arterial pressure, and even if restored the arterial pressure may progressively decline, and death ensue within a few hours after stopping the transfusion.[2]

Evidently with hypotension there develops a progressive deterioration of the curculatory machinery such that, even when the blood volume is temporarily restored, the circulation progressively fails, and this failure in itself will lead to further damage to the vascular machinery. We speak of this progressive failure of the circulation as the vicious cycle.[3] Physiologically we are inclined to consider that true shock is present when the vicious cycle has begun, i. e., when hypotension has been present long enough that recovery is difficult or impossible to achieve with transfusions, whereas, when the circulation is readily restored by reinfusing a quantity of blood equal to that lost we consider that a state of simple hypotension has existed. It must be confessed, however, that as yet no clear-cut signs have been discovered which would indicate when the subject has passed from the stage of hypotension into the stage of true chock.[4]

It is probable that the damage to the circulation results primarily from the tissue anoxia, as indicated by the reduced oxygen consumption during the hypotension. This could result in damage to the myocardium and nervous system so that the heart and respiratory machinery would be unable to perform their normal functions upon restoration of the circulating blood volume. In addition, the anoxia may so damage the tissues and particularly the capillaries throughout the body that the reinfused blood and particularly the plasma simply leaves the circulation and enters the tissues as interstitial fluid. Evidence that this may occur is seen in the edema which may occur in a leg when the circulation is restored after a few hours of ischemia.[5]

Whether or not trauma can contribute to shock by mechanisms other than fluid loss remains a moot question. This has been studied by many investigators who have arrived at a variety of conclusions. In our laboratory we devised a method of trauma which consistently produced a shock-like course leading to death.[5] This consists in applying a strong compression to the hind limbs of anesthetized dogs for a period of six hours. Upon release of the compression the arterial pressure begins to decline, the heart rate speeds, hemoconcentration occurs and the animals die in from two to fourteen hours. Since, in all of the animals that died as a result of this form of trauma, the edema which developed in the traumatized legs was less than the quantity of blood which would have to be removed in order to cause death, it seemed possible that either reflexes induced by afferent nerve impulses from the traumatized legs or toxic products absorbed by the blood from the compressed ischemic muscle might have contributed to the decline in arterial pressure and death. We have investigated the former by sectioning the nerves to the legs and by creating spinal transections prior to traumatizing the legs. In neither case did we observe any influence of the nerve block so produced upon the course of the shock following release of the compression of the hind legs. It seems probable, therefore, that afferent nerve impulses played but little part in this form of traumatic shock. This is in agreement with the recent work of Phemister *et al*,[6] but is not supported by the studies of Swingle and his group[7] on the shock which follows traumatization of an extremity of an anesthetized animal by repeated blows with a padded mallet.

In view of the above, we next investigated the possible operation of a toxic factor released from the compressed muscle. In these experiments we cross-transfused blood between a dog whose hind legs were traumatized by ischemic compression and a normal test dog in such a manner that each dog would receive back exactly as much blood as he gave to the other dog. The crosstransfusion was carried out continuously at a rate equal to about one-seventh the cardiac output and the crosstransfusion was continued until the traumatized dog died. In different experiments we collected blood from the carotid artery, from the inferior vena cava or from the femoral veins of the traumatized dog for exchange with the test dog. Despite the fact that the quantity of blood exchanged usually equaled one or more times the weight of the traumatized dog, none of the test dogs showed any decline in arterial pressure or died, whereas all of the traumatized dogs died within two to six hours after restoration of the circulation to their compressed legs.[8]

It appears evident from these studies that there is no substance released from traumatized tissue which in itself is capable of causing a serious decline of arterial pressure or death. On the other hand, it is true that in the traumatized animals there was a rapid reduction of urine output following restoration of the circulation to the compressed legs, indicating a diminished renal function, and this factor may have rendered the traumatized dogs susceptible to quantities of the hypothetical toxic substance, which would have been without effect upon the test dogs whose renal function was presumably undisturbed. This possibility is now under investigation.

Thus neither nervous nor toxic factors alone serve to explain the declining arterial pressure and death in these traumatized animals. It is apparent that the principal initiating factor in this form of traumatic shock must have been the local edema in the traumatized dogs. The traumatized legs contained practically no extravasated blood but did contain considerable quantities of edema which appeared to be composed largely of plasma. Since the volume of this edema was significantly less than the volume of blood which must be removed to cause death by hemorrhage, it appears that the body tolerates less well loss of a given quantity of plasma than of whole blood. It is probable that the loss of this quantity of plasma led to death by causing ultimately a progressive deterioration of the circulation such as was described above following simple hemorrhage.

Before closing, one other point deserves mention. In the course of the studies on the ischemic compression shock, one experiment was performed on a day when the temperature in the laboratory was quite low. This dog survived, whereas all others had died. We therefore began an investigation of the effects of low environmental temperatures on the outcome of this type of shock. In this study a series of traumatized dogs were kept in rooms at temperatures of about 50° F. These dogs all survived more than twenty-two hours and many lived indefinitely, whereas all the traumatized dogs kept at normal room temperatures died within one to nineteen hours. Since the amount of edema in the traumatized legs was the same in the dogs that survived and in those that died, it is apparent that the beneficial effect of the low environmental temperature was not due to diminishing the fluid lost at the site of the trauma.[9]

Registration of the rectal temperature of the dogs dying of this form of shock while at normal room temperature indicated that the body temperature usually rose steadily until death, indicating a failure of the temperature regulating mechanism in the presence of inadequate circulation. On the other hand, the body temperature of the dogs that survived at low environmental temperatures usually remained normal or declined slightly. Body metabolism is considerably raised by slight elevations of body temperature, and conversely lowered when the body temperature falls, provided that shivering does not occur. It is apparent, therefore, that one beneficial effect of the low environmental temperature may have been to keep the metabolic demands of the body within the limits of the depressed circulation. As a result, onset of the vicious cycle may have been prevented. Also it is possible that the cool environment may have facilitated the compensatory cutaneous vascular constriction.

While I do not propose to discuss the therapy of shock, it is possible to summarize this paper by presenting a few therapeutic implications. 1. Because of the deteriorating effects of even a short period of hypotension upon the circulation itself, it would appear to be better to give fluid, preferably blood or plasma, during an operation, even though it be continuously lost by unavoidable hemorrhage, than to allow the blood pressure to decline to dangerous levels during the operation and then attempt to restore the fluid loss after completion of the operation. 2. The quantity of blood and particularly the quantity of plasma which need be lost to induce a progressive decline of the arterial pressure and death may be quite small, in our experiments amounting to only 15 to 35 cc. of plasma per kilogram of body weight. 3. It seems possible if not probable that cool environmental temperatures, especially if not carried too far, may provide a better chance of recovery from shock than a normal or warm environment, especially when the subject is under anesthesia, and therefore capable of having his body temperature and body metabolism significantly modified by the environmental temperature.

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TRENDS IN HEALTH LEGISLATION

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Read at the annual meeting of the American Association of Nurse Anesthetists held in Cleveland, Ohio, October 2-5, 1944.

Some of the existing and proposed legislation covering health service has grown directly out of military necessity and war-time production. These problems will appear in reverse form when peace-time activity becomes the normal pattern for national and individual life. But other legislation has been a natural development arising with the increase of specialization of health service and the reliance upon extensive publicly provided plants and equipment.

In considering legislation, the members of this association are concerned first of all in the health of the American people, and secondly, with the prerogatives of the profession. The interests of nurse anesthetists, as professional people, are similar to those of the physicians and surgeons who guide the nurse anesthetists' activities and the hospitals in which most nurse anesthesia service is performed.

Federal legislation for the financing of physical facilities of hospitals and clinics was initiated under the so-called "Lanham Act" during the early days of pre-war mobilization and production. This bill provides for use of Federal funds to provide necessary community facilities, including hospitals and clinics, in areas where special shifts of population have made existing facilities inadequate. The act is administered by the United States Public Health Services, and grants are being made daily for the provision of facilities, particularly in war production areas and, to a lesser extent, in rural communities.

An important piece of legislation connected with the families of members of the armed forces has been put into effect recently, namely, the Emergency Maternity and Infant Care program administered by the United States Children's Bureau, under which maternity care for the wives of enlisted men and services for infants under one year of age are provided at the expense of the United States Government. Under this law several million dollars are being expended each month.

The widely publicized "G. I. Bill"

for veterans provides all necessary hospitalization for service-connected conditions in veterans' facilities or in private hospitals (depending on circumstances); also services to members of the armed forces for non-service connected conditions in a veterans' facility, provided that beds are available and that the veteran asserts his inability to obtain necessary care from his private resources.

A special item of proposed legislation, separate from the exigencies of war-time activities, is the recommendation by Representative Coffee of Washington to make health service available for all recipients of public assistance for whom grants in aid by the Federal Government are provided under the existing Social Security Act. One of the inconsistencies of present social security legislation is the fact that the public assistance "categories" (the aged, the blind, dependent children, and those on general relief) must receive all their benefits in "cash." Beneficiaries of public assistance must prove their need for free medical care in each instance when care is requested or required.

Legislation is necessary to permit matching by Federal funds for state grants for systematic medical care rather than mere cash reimbursements to public beneficiaries for health services obtained from private practitioners or institutions. The principle expressed in the Coffee Bill has been approved by the American Hospital Association, the American Public Welfare Association, and many leaders of the medical profession. It has also been incorporated in more general legislation, including the "Wagner Bill" which is the main subject for discussion in the remainder of this paper.

The most comprehensive and most widely discussed piece of legislation involving health service for the American people is Senate Bill 1161 and House Resolution 2861, a ninety-page document known as the Wagner-Murray-Dingell Bill. There appears to be very little probability of its passage by the present congress, and most observers hold the opinion that public hearings will not be held during the remaining few months of the year 1944.

The purpose of the Wagner Bill is to bring about a complete social security program for the American people, which will cover all periods of non-employment, namely: childhood and youth, age and permanent disability, accident and sickness, and failure to obtain a job.

The main provisions of the Wagner Bill are as follows:

1. A national system of public employment offices.
2. A Federal unemployment insurance system.
3. Extension of social insurance provisions to self-employed workers, farmers, domestic servants, employees of non-profit institutions, et cetera.
4. Continued coverage of social insurance without contribution for members of the armed forces.
5. Permanent disability insurance and lump sum death benefits.
6. Greater old age and survivor insurance benefits.
7. Temporary disability insurance and maternity benefits.
8. Medical care and hospitalization.
9. Grants in aid to states for needy individuals, as well as for dependent children, the aged and the blind, with the definition of public assistance broadened to include medical and rehabilitation services.

It is estimated that the total social insurance contributions to cover the old age, unemployment, disability, and medical care and hospitalization benefits would be 12 per cent of wages up to $3000 per year, 6 per cent paid by the employer and 6 per cent paid by the employee. The self-employed would pay 7 per cent, but would not share in the unemployment and temporary disability benefits. The term "wages" is defined broadly to mean all remuneration for employment, including salaries, commissions, and market value of exchanged services.

Under Title IX of the bill, every individual currently insured would be entitled to general medical, special medical, laboratory, and hospital benefits. The technical and professional aspects would be administered by the Surgeon General of the United States Public Health Service and the financial payment and social insurance relationships by the social security board. It is estimated that the medical and hospitalization benefits would cost 3 per cent of the wages on which the contributions are based.

The provisions of the bill state that any legally qualified physician may participate, that individuals may select any physician for general services, and that specialists will be designated by the Surgeon General in accord with professional advice. The basis of payment to practitioners may be (a) fee for service; (b) per capita basis (for general practitioners only); (c) salary, full or part time; (d) per session; (e) combination of the foregoing.

As to hospitalization, the bill proposes that there be a maximum of thirty days' benefit per year for each insured worker and/or each dependent, in a participating hospital, on the advice of a legally qualified physician. Participating hospitals would be accredited by the Surgeon General, and a list of such hospitals would be published. There is provision for a national advisory medical and hospital council of which the Surgeon General would be chairman. Other members would be appointed by the chairman from panels of names submitted by agencies and organizations concerned with, or informed on, medical, hospital, and related benefits.

Hospitals, physicians and civic leaders concerned with the provision of health service have emphasized the importance of avoiding compulsory programs in the distribution of health service. Accordingly Blue Cross Plans for hospital care, and prepayment medical plans under the jurisdiction of physicians, are offered to the people as an alternative to a compulsory program.

At the annual meeting of the American Hospital Association, 1943, the House of Delegates went on record as favoring the full development of voluntary programs before resorting to compulsory nation-wide health insurance. Among the recommendations of the House of Delegates were (1) Federal grants in aid for the extension of hospitals in areas requiring additional facilities; (2) Federal grants in aid to states for the care of the public assistance beneficiaries and the medically indigent members of the population; (3) extension of present benefits to groups now excluded from the old age and survivors' insurance; (4) payroll deduction for Federal employees for voluntary medical and hospital protection, as an example to state and political subdivisions as well as private industry in the development of voluntary methods of assuring proper health service.

American hospitals are the best in the world and the ratio of beds is higher than in any other country. But the existence of adequate facilities does not mean that everyone receives good hospital care any more than a number of well stocked grocery stores means that everyone receives the proper food. The uncertainty of sickness costs creates an economic barrier between health facilities and their proper utilization. This uncertainty can be removed by group prepayment such as the Blue Cross and medical plan offer. It is the privilege and responsibility of hospitals and the professions to offer their services on a convenient basis without government compulsion if a national program is to be made unnecessary.

In testimony before the United States Senate Sub-Committee on Health and Welfare, the author mentioned that "both the friends and critics of the voluntary movement say that the Blue Cross Plans, with their total of 16,000,000 participants, have not gone far enough. They argue that the voluntary action of 12 per cent should become the compulsory action of the entire population."

Health service is extremely personal and the best results are obtained when the patients cooperate actively in a program of prevention and treatment including the payment of the costs. A voluntary community program such as the Blue Cross Plan involves a certain amount of discipline of the worker, the hospital and the physician. But such discipline is consistent with the American spirit and dignifies both the individual and the objective.

The Blue Cross Plans and voluntary prepayment plans for medical care offer a significant benefit to the American people. They are a form of public service, but they accomplish their end without compulsion. They are unique in the history of America and a departure from trends in the production and distribution of health service in other countries. Wider application of their principles would go far toward distributing adequate health service to the American people.

PULMONARY VENTILATION IN OPEN PNEUMOTHORAX SURGERY

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The respiratory mechanism of the body has proved itself to be an extremely dependable mechanism even under most adverse conditions. In spite of the use of respiratory depressant drugs, and of mechanical interference with breathing such as obstruction of the air ways, unfavorable positions on the operating table, and the production of anoxia and asphyxia from other causes, the respiratory mechanism is almost always able to keep going to a sufficient degree to "get the patient by" many a critical spot in the operating room. As the second century of modern surgical anesthesia begins, however, attention is being increasingly directed toward minimizing physiological deviations from the normal during the preoperative, operative, and postoperative periods. It is the function of the operating room team to be intently alert to this problem, so as to give the surgeon as much time as he needs to carefully work out some of the technical details of the more difficult surgical problems. It seems probable that this attitude has been responsible for the striking improvement in the results of many major surgical procedures. One of the most clear-cut examples of this is seen in the field of gastric surgery. Here technical details of stomach operations were well worked out years ago but the striking improvement in results has occurred within just the past four years.

The technical aspects of thoracic surgery did not develop until a great deal of serious thought had been given to the problem of maintaining adequate pulmonary ventilation in the presence of a large opening in the chest wall. It was long known by the physician that a large opening in the chest wall proves fatal much more rapidly than a wound of similar size in the abdominal wall. When the pleural space on one side is widely opened to the atmosphere, the normal fluctuating negative pressure is replaced by the constant pressure of the atmosphere, and, if there are no adhesions between visceral and parietal pleura, the lung rapidly collapses to approximately one-third of its original size. As a result of the pulmonary collapse there is immediate vigorous reflex stimulation of the respiratory effort via the vagus nerve. In the absence of air way obstruction there is very little volume change in the collapsed lung, but the increased respiratory effort causes increased volume change on the intact side which, under conditions approaching the basal metabolic state, is entirely adequate to compensate for the decreased function of the collapsed lung for short periods of time. This compensation is possible by sacrificing some of the patient's reserve breathing capacity. If there is not sufficient reserve breathing capacity fatal asphyxia will inevitably supervene.

It should be noted that the added work of the increased respiratory effort will automatically increase the metabolic rate, and thus further encroach upon the patient's reserve breathing capacity. Drug and anesthetic agents that depress the respiratory center also may drastically reduce the patient's reserve breathing capacity. One gets the impression that the opening of the free pleural cavity was not a very popular procedure as long as open methods of anesthesia were in vogue in spite of the elaborate pressure chambers of Sauerbruch and Willy Meyer. Von Mikulicz apparently was the first surgeon to suggest the use of a tight fitting face mask for the administration of positive pressure anesthesia. This was an important advance and, coupled with the carbon dioxide absorption technique and improved anesthesia machines, really opened the field of thoracic surgery.

One gets the impression, however, that there have been quite a few operating room fatalities even with this new positive pressure technique. Let us consider the mechanics of the so-called constant flow positive pressure anesthesia. If oxygen is administered at a rate such that the breathing bag is kept taut, some positive pressure will be maintained in the system throughout the respiratory cycle. The pressure will be lowest at the end of inspiration and greatest at the end of expiration. Since the partially collapsed lung surrounded by atmospheric air responds only to changes of intrapulmonary pressure, this lung *increases* in volume during *expiration* and *decreases* in volume during *inspiration*. This is equivalent to an increase of the dead space. It may be compensated by the reflex stimulation of the partial collapse. However, with positive intrapulmonary pressure and the partial reexpansion of the collapsed lung, the reflex stimulation is withdrawn and may be replaced by a reflex inhibition of breathing, leading to a further decrease in pulmonary ventilation.

The advantage of this constant flow positive pressure anesthesia can readily be demonstrated in the presence of a large bilateral pneumothorax. The best examples of this are provided in animal experiments with the dog, in which animal there is a common pleural cavity. It is seen that without positive pressure anesthesia a large open pneumothorax is invariably and rapidly fatal, in the absence of pleural adhesions. With the constant flow type of positive pressure anesthesia the animals can be maintained from three to four hours, but they then show marked signs of surgical shock and generally expire abruptly. The interval of time between the onset of unfavorable signs and death is rather short. It reminds one of the well-known postmortem statement — "The patient's color, pulse, and blood pressure were fairly good and everything seemed to be going all right when suddenly the patient went bad and could not be revived." Moyer recently studied some physiological aspects of experimental pneumothorax and reached an identical conclusion which emphasized particularly the dangers of the respiratory depression produced by intravenous anesthetic agents.

C. H. Lenhart of Cleveland in 1918 was one of the first to demonstrate the chemical disturbances associated with respiratory insufficiency of open pneumothorax. The first chemical change following pneumothorax was shown to be a gradual accumulation of carbon dioxide in the body, with a later fall in oxygen saturation of the blood. Van Slyke has shown that concomitant with carbon dioxide retention there is a shift of extracellular body water into the cell. This factor produces hemoconcentration. It should also be pointed out that large amounts of water can be lost by evaporation from the exposed pleural surfaces, also leading to hemoconcentration and reduced body temperature. The latter factor is favorable in the light of newer studies on shock.

Thus, the patient with reduced breathing capacity due to disease, premedication, and anesthetic agents may show varying degrees of respiratory insufficiency even with constant flow positive pressure. Clarence Crafoord of Stockholm, Sweden, has reported careful clinical studies to corroborate these findings in the clinical thoracic surgery. Anesthetists periodically deny that this could happen in their own cases, but as far as I know there has been no published data to support such claims.

Obviously the correction of any degree of pulmonary insufficiency in open pneumothorax due to failure of the normal respiratory mechanism of the body is exceedingly simple. It can be accomplished by intermittently compressing the breathing bag and artificially ventilating the alveoli. This can be done by hand or mechanically. One can easily hyperventilate the patient by this method. If hyperventilation is carried out to the point where the alveolar carbon dioxide is lowered by 0.25 per cent, apnea is produced, with complete cessation of respiratory effort of the patient, and pulmonary ventilation is carried out by controlled breathing. If excessive hyperventilation is continued, a very marked hypocapnia may be produced. Such a degree of hyperventilation is unnecessary and may be harmful, since it causes excessive depression of the respiratory center and possibly of other important nerve centers. In some patients there may be a marked fall in blood pressure without acceleration of the pulse if excessive hypocapnia is produced. The blood pressure rapidly returns to normal levels when carbon dioxide is again allowed to accumulate in the subject.

I shall discuss briefly our experiences with controlled breathing. It has been used in pulmonary lobectomy, pneumonectomy, pericardiectomy, the repair of diaphragmatic hernia, ligation of the patent ductus arteriosus, and resection of the thoracic esophagus. We have used both mechanical and manual methods. The mechanical method has proved reliable and precise, but it requires the keenest of physiologic observation on the part of the anesthetist in order to regulate correctly the degree of pulmonary ventilation and at the same time maintain an even plane of anesthesia. When the pleura is first widely opened it is necessary for the surgeon and the anesthetist to cooperate in establishing controlled breathing. It generally requires about five to ten minutes to hyperventilate the patient sufficiently to reduce respiratory movements to a minimum. No attempt should be made to stop completely all respiratory movements, since this means excessive depression of the respiratory center. In this state of apnea the operative field remains quiet for the surgeon and the procedure is restful to the patient. Lowered carbon dioxide tension appears to facilitate the action of anesthetic agents. Patients who must breathe by their own efforts during open pneumothorax generally perspire profusely during the procedure. Patients carried on controlled respiration do not perspire and have a dry skin even after four to five hours of anesthesia. Their oxygen requirement is reduced to a minimum. Reflex effects on respiration of rib retractors and intrathoracic manipulation can be ignored. The quietness of the lungs reduces the chance of spillage of bronchial secretions from one part of the lungs to another. Exchange of room air through the pleural opening is reduced to a minimum. The patients show very little fatigue and postoperative shock. It is not to be denied that blood and fluid replacement are most important in the prevention of surgical shock.

Esophagectomy is perhaps the crowning achievement of thoracic surgery to date. The success of this procedure depends upon: (1) preoperative correction of malnutrition and hypoproteinemia by jejunostomy and preliminary feeding, (2) controlled pulmonary ventilation for a long transpleural procedure, and (3) control of postoperative infection by sulfa drugs and penicillin. Using this regime, it has been possible in the past year for us to do three consecutive esophageal resections with uniformly smooth postoperative recovery. Our series is not large enough to draw any sweeping conclusions, but we feel that mortality rates of 30 to 50 per cent for esophagectomy reported by others can be lowered.

After several years of careful trial of controlled breathing it appears to have definite advantages in certain open pneumothorax procedures. It is not to be advocated for other types of operations except in the presence of respiratory failure.

TWELFTH ANNUAL MEETING

REPORTS OF OFFICERS AND COMMITTEES

ACTING PRESIDENT

"Management has been defined as the art and science of organizing, preparing and directing human effort as applied to control forces and utilize material for the benefit of man." The Board of Trustees elected by the members of this Association acts in the capacity of management, so their efforts in preparing, directing and utilizing material are given in this report for your consideration.

The objects of this Association are: to advance the science and art of anesthesiology, to develop educational standards, to facilitate cooperation between nurse anesthetists, hospitals and the medical profession, to publish bulletins, to maintain a central office for information and reference and to promulgate an educational program. These objectives do not change and should be constantly kept in mind.

A quorum was not present at the eleventh annual meeting which was held in Buffalo last year. Therefore, no actions were taken to promote the objectives of this Association.

HAZEL BLANCHARD, *President*

Miss Appel submitted her resignation at the Post-convention Board meeting to take effect on October 1, 1943. Miss Pinsoneault was in charge of the office until she resigned on February 1, 1944.

Your president, Mrs. McDonald, was ill and incapacitated to the extent that she was unable to carry on the duties of her office. In kindness to Mrs. McDonald the Board of Trustees, at a meeting held in Cleveland, January 30, 1944, suggested to her that the Vice President take over her duties until such time as she could again assume the responsibilities of her office. At this Board meeting four applicants, Agnes McCann, Anne Campbell, Irene Klein and Ruth Corliss were interviewed for the position of Executive Secretary. It was voted by the Board to appoint Miss Anne Campbell, with whom many of you are already acquainted.

On June 3 an Executive Committee meeting was held in Cleveland. The recommendations submitted by this Committee were approved by the Board of Trustees at a meeting held in New York City, June 25 and 26, 1944. The actions taken are as follows. It was voted to increase Mrs. Peck's remuneration as Assistant to the Treasurer. Mrs. Peck was certainly deserving of this consideration for the faithful and untiring service she has rendered for so many years. The Treasurer was instructed to draft a contract form for employees, was authorized to purchase six $1,000 War Bonds and to prepare a budget for presentation to the members under which the Association would operate in the future.

Committee appointments, including a Post War Planning Committee, were approved by the Board, and the Chairman of the Examination Program was authorized to consult with your Hospital Association Adviser on securing contacts in Washington to whom problems could be taken concerning the nurse anesthetists in the armed forces.

At the Post-convention Board meeting in 1943, Miss Lamb and Mrs. Fife were appointed to serve as a special committee to collaborate with the U. S. Public Health Service in Washington on application forms for schools desiring grants for students under the Bolton Act. This study was presented and approved by the Board.

The need for an informative leaflet for distribution to prospective students, hospitals and allied organizations making inquiries concerning qualifications for admission to schools of anesthesiology was discussed. The Chairman of the Education Committee and the Executive Secretary were authorized to prepare the necessary material. The result of this endeavor you probably have all seen by this time. Your comments and criticisms are solicited. Words of praise are due the persons responsible for what it is hoped you will consider an adjunct to the work of your organization.

The Chairman of the Educational Committee was instructed to prepare a set of minimum standards which could be issued to the numerous hospitals requesting information concerning the establishing of schools of anesthesiology. This project will be completed in a very short time.

An organization known as the National Wartime Conference invited this Association to participate in its activities. Upon advice the Board of Trustees decided to decline this invitation.

The Chairman of the Publishing Committee suggested that the publication of "The Bulletin" be transferred to the Executive Office in Chicago. Since this transfer and the probable adoption of the examination program would further increase the work handled at this office, the need of additional personnel and office space was taken into consideration. The transfer of the work of publishing "The Bulletin" in Chicago is a beginning in centralizing all Association activities. With due consideration to the Association and the long years of service by your Treasurer, the Board went on record as being in favor of transferring this one remaining activity to the Executive Office in Chicago.

Your Chairman was instructed to send a letter to all Chairmen of Committees urging their attendance at the Annual Meeting, for they are the persons who investigate problems, supervise activities and develop new leaders through participation in Association activities. Plans were made in the interests of public relations, the program and convention arrangements. It is hoped they have materialized to your satisfaction.

The list of schools compiled by this Association giving courses in anesthesiology has been a source of trouble since the survey was conducted. For this reason it was voted to send a new questionnaire, which was compiled by the Chairman of the Educational Committee and the Executive Secretary. These questionnaires are now being tabulated as they are returned and should reveal valuable information.

The examination program and revision of the By-Laws so ably formulated by the Chairman of the Examination Committee have been given a great deal of study by your Board. It is the feeling of this body that their adoption by you at this time will be a long step in the future security of the Association.

The resignation of your President, Mrs. McDonald, was received on June 23 and accepted with regret by the Board of Trustees. Mrs. Fife submitted her resignation on June 19 from the responsibility of all committee work to take effect following the Annual Meeting. It seemed only fair to concede to the wishes of two of the most loyal, hard working members that this Association has had since its origin. The time must come for all to relinquish some of their duties, but many persons will be needed to do the work that they have done these many years. We must prove that the organization they have helped to build is worthy of their efforts.

It was authorized by the Board that all Committees should meet once a year at the expense of the Association. Other committee meetings deemed necessary could be held at the discretion of the Chairman of the Board of Trustees, the results of such meetings to be published in "The Bulletin."

Miss Beatrice Thorpe, who has been employed as stenographer at the Executive Office, resigned August 19 to join the Women's Auxiliary Volunteer Emergency Service. Her patriotic spirit is most commendable. This position was filled by Mrs. Betty Ahles, who is serving you in Cleveland this week.

This meeting brings to a close the twelfth year of the Association's activities. Keeping in mind that this is a period of transition, the Board of Trustees suggests a few of the most important things to be accomplished in the future.

1. A well-equipped Executive Office where all affairs are handled in a business-like way.
2. Efficient operation of the examination program.
3. The setting of minimum standards for schools of anesthesiology.
4. The granting of college credits for graduates of schools of anesthesiology.
5. The establishment of courses or institutes for the training of instructors for schools of anesthesiology.
6. The promotion of better public relations.

Will you as members of this Association think about the work being done by your managing board in relation to the objectives as stated in the By-Laws? Will you decide what you want done about the problems and future plans of your Association? Upon good plans, made well in advance, depends the success or failure of any enterprise.

Respectfully submtited,

HAZEL BLANCHARD, *Acting President*

EXECUTIVE SECRETARY

This report, instead of being chronological in order, is going to start with the report of a recent and one of the most interesting visitors at the Executive Office. The caller was a doctor from Brazil who is in this country to study hospitals and report back to his government. He is taking back what, in his opinion, are two big ideas, one of them being that of the nurse as an anesthetist. He was greatly interested in your profession and your Association and took a number of reprints and copies of *Bulletins* to aid in the writing of an article to be published in Brazil on the nurse anesthetist in this country. We hope to receive a copy of it so that it may be pubilshed in the Bulletin.

As mail poured into the office, the need of mass education of hospital superintendents and prospective anesthetists in regard to the educational standards and objectives of your Association became more and more evident. The letter which was referred to in the August Bulletin was sent to all hospital superintendents on the mailing list of the American Hospital Association and published in the June issue of The American Journal of Nursing. This was the first attempt to educate these groups along these lines. The letter to the hospital superintendents has elicited many requests for information and lists of schools. That which was published in the American Journal of Nursing and the article on the nurse anesthetist in the August issue of the same journal by Mary A. Costello, a member of this Association, have been mentioned by many prospective anesthetists in their letters concerning specializing in anesthesiology.

There is in preparation a folder which is more specific than the first letter. This will be sent to the same group of hospital superintendents and, in the future, to all asking for information. If it does not arrive during the convention, copies will be sent to you on request .

In June a new questionnaire was sent to all hospitals that we knew or believed were conducting a School of Anesthesiology. One hundred sixteen were mailed. To date we have had replies from fifty-eight. Returns from thirty-one hospitals indicate that they are conducting schools; twenty-five have no school, three having been discontinued recently because of lack of personnel; and one hospital completed the questionnaire and stated they have no special School of Anesthesia but that a unit on the subject is given as part of the course in nursing. One hospital which has trained only medical anesthetists has accepted a nurse for training as an emergency measure.

Requests for anesthetists have been received by telegram, letter and telephone. You are aware of the inverse proportion between demand and supply. A cumulative list of such requests has been maintained and sent to members inquiring about positions. Your Executive Office does not intend to establish an employment bureau, but would like to be of service to hospitals and members of the Association. Names of available members are listed for two months, with the request that the office be notified if any accept a position or wish to remain on the active list. Since February 15 requests have been received from forty-seven hospitals asking for a total of fifty-six anesthetists. This does not include repeated requests from some who speak of their situation as "desperate."

Dagmar A. Nelson recently sent the transcript of her trial to be placed among the archives of the Association. She stated that she feels it is of more value to the Association than to her.

Your Acting President and I attended an Institute for one week in August. It was held in Evanston, Illinois, and conducted jointly by the American Trade Association Executives, The Chamber of Commerce of the United States, The National Association of Commercial Organization Secretaries, and Northwestern University. We both recommend it highly to national and state officers. Naturally, some of the subject matter pertained more specifically to the groups sponsoring it than to us, but there was much of value to our organization. The speakers were of national repute. Some came by plane or train, presented their papers and left the same day. None were too busy or too important to help us with our specific problems. The discussions which pertained especially to us included: "Bulletins and Publications"; "Committee Organization and Procedure"; "Financing the Association"; "Managing the Association Office"; "Membership Building and Maintenance"; "Planning and Conducting Meetings"; "Press Relations for the Association"; and, "The Human Side of Our Jobs." Many subjects beyond our needs were of national importance and therefore interesting to us. There were five lectures on Practical Public Speaking, which gave many helpful suggestions. We recommend it to any of you who wish to spend a worth while, stimulating, exhilarating and exhausting week. If you would like to receive information about next year's Institute, write to me next June, and I will see that you receive a circular.

During the year I have attended state meetings in Pennsylvania and Minnesota as well as the Tri-State meeting held in Chicago. These meetings were extremely interesting to me. Your members were cordial and friendly to a stranger. I hope that it may be possible for me to attend many of your state meetings in the future.

The only statistics with which I shall burden you pertain to the total membership, which was 3,094 on August 31. The number of members in the Armed Services on the same date was 321. The states having the largest membership continue to be Pennsylvania, Illinois and New York, in that order.

It is not within my province to make recommendations to you; neither do they rightfully belong in this report. I trust you will bear with me if I mention the post-war period and its challenge and importance to you as individuals and to the Association as a whole. May I urge active participation in your national and state organizations. Your Associations represent you as professional women, but they are no stronger than their members make them. You are needed as board and committee members; your ideas are needed and welcome. Your Associations need the full and enthusiastic support of all their members.

As for your main office, we hope to be of service to you. "That which is difficult we do at once. To do the impossible takes us a little longer." The motto of the Marines has been adopted as the motto of your Executive Office.

I had never heard of your organization until last September. What I heard of it sounded interesting and challenging. I gave up a position and a profession in which I had been happy for a number of years with considerable trepidation. My eight months with you have been happy and stimulating. You have been considerate and cooperative. I am enjoying my associations with you.

Respectfully submitted,

October 3, 1944 ANNE M. CAMPBELL

TREASURER

AUDITOR'S EXAMINATION FOR THE YEAR ENDED AUGUST 31, 1944

September 19, 1944

To The Board of Trustees,
The American Association of Nurse Anesthetists,
Cleveland, Ohio

Mesdames:

In accordance with your request, I have examined the accounts and records of the Treasurer's Office of The American Association of Nurse Anesthetists for the purpose of verifying and reporting the financial transactions for the year ended August 31, 1944. I submit herewith my report together with the following statements:

Exhibit A	Condensed Comparative Statement of Receipts and Disbursements for the Fiscal Years Ended August 31, 1944, 1943, 1942, 1941
Exhibit B	Analysis of Assets as at August 31, 1944 and August 31, 1943
Exhibit C	Schedule of General Fund Investments August 31, 1944
Exhibit D	Schedule of Trust Fund Investments August 31, 1944
Exhibit E	Statement of Cash Receipts and Disbursements—General Account for the Year Ended August 31, 1944
Exhibit F	Statement of Savings Account, Cleveland Trust Company, for the Year Ended August 31, 1944
Exhibit G	Statement of Savings Account, Central National Bank, for the Year Ended August 31, 1944
Exhibit H	Statement of Savings Account, National City Bank, for the Year Ended August 31, 1944
Exhibit I	Statement of Trust Fund Savings Account, Cleveland Trust Company, for the Year Ended August 31, 1944
Exhibit J	Statement of Trust Fund Income Savings Account, Cleveland Trust Company, for the Year Ended August 31, 1944

Balances on deposit in the various bank accounts were verified by direct correspondence with the depository banks and by reconciling the balance so reported with the books of the Association. All recorded cash receipts were traced into the bank deposits and all transfers between bank accounts were traced and properly accounted for. Vendors' invoices, cancelled checks and other data were examined in support of all recorded cash disbursements.

The Treasurer's Petty Cash Fund was verified by an inspection of the petty cash journal. All entries were found to be in order and bearing the approval of the Treasurer. The other petty cash funds were verified by an inspection of approved lists on file.

The investments of the Association were inspected by me and were found to consist of the items shown on Exhibits C and D. These bonds are kept in a safe deposit box at The Cleveland Trust Company.

The resources of the Association now total $24,701.89, an increase of $4,999.90 over the previous year.

The Treasurer's records are neatly and accurately maintained in accordance with accepted bookkeeping methods and all monies received have been properly accounted for.

Certificate of Audit

I have examined the books and records of the Treasurer's Office of The American Association of Nurse Anesthetists and I hereby certify that in my opinion the statements accompanying this report correctly reflect the financial transactions for the year ended August 31, 1944 and the balances on deposit in the various bank accounts at that date.

Respectfully submitted,
(signed) CHARLES H. PIMLOTT
Accountant and Auditor

CONDENSED COMPARATIVE STATEMENT OF RECEIPTS AND DISBURSEMENTS (Exhibit "A")

For the Fiscal Years Ended August 31, 1944, 1943, 1942, 1941

	8-31-44	8-31-43	8-31-42	8-31-41
Cash Receipts				
Application Fees	842.00	1,114.00	725.00	786.00
Dues—American Association	10,370.35	9,682.84	8,502.15	8,069.20
State Associations	979.60	1,035.75	803.25	897.25
Income from Bulletins	2,914.00	2,553.60	2,619.79	2,793.56
Reserved for Trust Fund	536.00	518.60	257.20	243.90
Sale of Pins	332.00	384.25	2,112.19	
Interest Earned	70.10	66.98	57.57	67.91
Other Receipts	710.89	192.00	236.50	471.95
	16,754.94	15,548.02	15,313.65	13,329.77

Cash Disbursements				
Publishing Bulletins	2,028.83	2,858.13	2,959,84	3,168.08
Transfers to States	329.45	399.75	295.50	286.25
Convention Expense	821.24	1,241.99	980.44	826.57
Purchase of Pins	277.83	279.27	1,553.52	
Operating Expense	8,297.69	6,621.66	7,486.81	6,567.04
Office Equipment		31.08	271.51	
	11,755.04	11,431.88	13,547.62	10,847.94
Excess of Receipts over Disbursements	4,999.90	4,116.14	1,766.03	2,481.83

ANALYSIS OF ASSETS (Exhibit "B")

As at August 31, 1944, and August 31, 1943

	8-31-44	8-31-43
General Fund		
Cash		
Commercial Account—Cleveland Trust Co.	994.61	1,058.81
Savings Accounts—		
Cleveland Trust Co.	1,999.90	4,970.60
National City Bank of Cleveland	2,073.54	2,053.47
Central National Bank of Cleveland	1,603.01	1,587.59
Investments—at cost (Exhibit C)	15,637.00	8,200.00
	22,308.06	17,870.47
Trust Fund		
Cash		
Savings Accounts		
Cleveland Trust Co.	48.70	840.20
Cleveland Trust Co.	32.63	29.32
Investments—at cost (See Exhibit D)	2,312.50	962.00
	2,393.83	1,831.52
Total Assets	24,701.89	19,701.99
Increase in Assets over previous year	4,999.90	

SCHEDULE OF GENERAL FUND INVESTMENTS

(Exhibit "C")

August 31, 1944

Date of Issue	*Life of Bond*	*Purchase Price*	*Maturity Value*
United States Savings Bonds	*(Series D)*		
February 1940	10 years	$ 750.00	$1,000.00
February 1940	10 years	750.00	1,000.00
February 1940	10 years	750.00	1,000.00
February 1940	10 years	750.00	1,000.00
February 1940	10 years	750.00	1,000.00
February 1940	10 years	750.00	1,000.00
		$4,500.00	$6,000.00

United States Savings Bonds (Series F)

January 1942	12 years	$ 3,700.00	$ 5,000.00
October 1943	12 years	740.00	1,000.00
October 1943	12 years	740.00	1,000.00
October 1943	12 years	740.00	1,000.00
October 1943	12 years	740.00	1,000.00
February 1944	12 years	740.00	1,000.00
February 1944	12 years	740.00	1,000.00
February 1944	12 years	740.00	1,000.00
February 1944	12 years	740.00	1,000.00
February 1944	12 years	740.00	1,000.00
February 1944	12 years	740.00	1,000.00
October 1943	12 years	18.50	25.00
October 1943	12 years	18.50	25.00
		$11,137.00	$15,050.00
Total General Fund Investment		$15,637.00	$21,050.00

SCHEDULE OF TRUST FUND INVESTMENTS

(Exhibit "D")

August 31, 1944

Date of Issue	*Life of Bond*	*Purchase Price*	*Maturity Value*
United States Savings Bonds (Series F)			
November 1941	12 years	$ 370.00	$ 500.00
November 1941	12 years	370.00	500.00
July 1944	12 years	370.00	500.00
July 1944	12 years	370.00	500.00
July 1944	12 years	370.00	500.00
November 1941	12 years	74.00	100.00
November 1941	12 years	74.00	100.00
November 1941	12 years	74.00	100.00
July 1944	12 years	74.00	100.00
July 1944	12 years	74.00	100.00
July 1944	12 years	74.00	100.00
October 1943	12 years	18.50	25.00
		$2,312.50	$3,125.00

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

GENERAL ACCOUNT (Exhibit "E")

For the Year Ended August 31, 1944

Balance, per Audit Report, August 31, 1943		1,058.81
Receipts		
Application Fees	$ 842.00	
Dues—American Association	10,370.35	
State Associations	979.60	
Transferred from Savings Account	2,997.50	
Reserved for Publishing Fund	1,639.00	
Income from Sale of Advertising	1,275.00	
Income Tax Withheld	620.80	
Reserved for Trust Fund	536.00	
Sales of Pins	332.00	
Contribution to Library Fund	38.00	
Contribution to Trust Fund	18.75	
Petty Cash — Headquarters	10.00	
Miscellaneous Income	23.34	19,682.34
		20,741.15
Disbursements		
United States Savings Bonds	7,455.50	
Administrative, Accounting and Stenographic Service	4,512.16	
Publishing Bulletin	2,028.83	
Travel Expense	1,154.56	
Convention Expense	821.24	
Contribution to American Hospital Ass'n.	720.00	
Collector of Internal Revenue (Withholding Tax)	563.30	
Transferred to Trust Fund Savings Account	536.00	
Postage	345.15	
Office Supplies and Printing	336.02	
Transfers to State Associations	329.45	
Pins Purchased	277.83	
Telephone and Telegraph	210.85	
Executive Committee Expense	159.12	
Examination Program Committee Expense	80.62	
Survey Expense	37.28	
Membership Committee Expense	34.14	
Membership — American Hospital Association	30.00	
Books and Periodicals	13.50	
Public Relations Committee Expense	10.47	
Petty Cash — President	10.00	
Revisions Committee Expense	5.00	
Nominating Committee Expense	3.50	
Program Committee Expense	3.00	

Library Committee Expense	1.55	
Educational Exhibit Committee Expense	1.02	
Miscellaneous	66.45	19,746.54
Balance, August 31, 1944		994.61

STATEMENT OF SAVINGS ACCOUNT, CLEVELAND TRUST COMPANY (Exhibit "F")

For the Year Ended August 31, 1944

Balance, per Audit Report, August 31, 1943	4,970.60
Deposits	
Interest Earned	26.80
	4,997.40
Withdrawals	
Transferred to General Account	2,997.50
Balance on deposit August 31, 1944	1,999.90

STATEMENT OF SAVINGS ACCOUNT, CENTRAL NATIONAL BANK, DOAN OFFICE (Exhibit "G")

For the Year Ended August 31, 1944

Balance, per Audit Report, August 31, 1943	$ 1,587.59
Deposits	
Interest Earned	15.42
	1,603.01
Withdrawals	—0—
Balance on deposit August 31, 1944	1,603.01

STATEMENT OF SAVINGS ACCOUNT, NATIONAL CITY BANK

For the Year Ended August 31, 1944

(Exhibit "H")

Balance, per Audit Report, August 31, 1943	2,053.47
Deposits	
Interest Earned	20.07
	2,073.54
Withdrawals	—0—
Balance on deposit August 31, 1944	2,073.54

STATEMENT OF TRUST FUND SAVINGS ACCOUNT, CLEVELAND TRUST COMPANY (Exhibit "I")

For the Year Ended August 31, 1944

Balance, per Audit Report August 31, 1943		840.20
Deposits		
Interest Earned	7.81	
Transferred from General Account	536.00	543.81
		1,384.01
Withdrawals		
Transfer of Interest Earned to Trust Fund Income Savings Account	3.31	
For Purchase of U. S. Government Bonds	1,332.00	1,335.31
Balance on deposit August 31, 1944		48.70

STATEMENT OF TRUST FUND INCOME SAVINGS ACCOUNT, CLEVELAND TRUST COMPANY (Exhibit "J")

For the Year Ended August 31, 1944

Balance, per Audit Report, August 31, 1943	29.32
Deposits	
Transfer of Interest Earned on Trust Fund Savings Account	3.31
Withdrawals	—0—
Balance on deposit August 31, 1944	32.63

HISTORIAN

The National Association of Nurse Anesthetists held its organization meeting June 17, 1931, in the Anesthesia Department of the University Hospitals, Cleveland, Ohio. This meeting, which was attended by forty-nine nurse anesthetists, representing twelve states, was called together by Miss Agatha C. Hodgins, Director of the School of Anesthesia, University Hospitals of Cleveland.

The officers elected at this meeting were:

President	Miss Agatha C. Hodgins
1st Vice President	Miss Laura Dunstone
2nd Vice President	Miss Aida Allwein
3rd Vice President	Miss Helen Lamb
Secretary	Mrs. Matilda M. Root
Treasurer	Miss Verna Rice

The object in forming this organization was to advance the science and art of anesthesiology. The drafting of a Constitution and By-Laws was turned over to Mrs. Shawhan, parliamentarian, of Mobile, Alabama. On October 16, 1931, the Constitution and By-Laws were received and adopted by the officers of the Association.

The next step in the advancement of this organization was to find a place where meetings could be held to the best advantage of all members.

On November 16, 1931, the officers of the National Association of Nurse Anesthetists sent their Constitution and By-Laws with a letter to the Secretary of the American Nurses Association, expressing their desire to become affiliated with that Association; asking to have the affiliation take place at the Biennial Convention at San Antonio, Texas, in April, 1932.

While the officers of the National Association were waiting to hear about their affiliation with the American Nurses Association, the anesthetists from the various states were not idle. On November 28, 1931, Wisconsin Anesthetists held their first organization meeting. December 2, 1931, Ohio Anesthetists met to organize their state. December 20, 1931, Alabama organized and April 7, 1932, Michigan was organized.

It was not until May 3, 1932, that a letter was received from the Secretary of the American Nurses Association, which read as follows:

> "Inasmuch as the avenue to membership in the American Nurses Association of all nurse anesthetists should be the avenue already established; namely, through their Alumnae, District and State Associations, the application for membership of the National Association of Nurse Anesthetists for affiliation with the American Nurses Association could not be accepted."

The National Association of Nurse Anesthetists replied on May 14, 1932, "That affiliation with the American Nurses Association is apparently not possible," et cetera.

In January, 1933, Miss Agatha Hodgins, president and organizer of the Association, was admitted as a patient to the University Hospitals, Cleveland, Ohio. With the illness of Miss Hodgins, the activities of furthering the progress of the Association seemed to fall on the anesthetists in Cleveland who were closely associated with her. The officers were trying to find a place where another meeting could be held. On Wednesday, May 10, 1933, a letter was received from Dr. Bert W. Caldwell, stating that "the American Hospital Association would particularly welcome a meeting of the nurse anesthetists in conjunction with the American Hospital Association the week of September 11th to 15th, inclusive, in Milwaukee, Wisconsin." A meeting was held May 18, 1933, to consider Dr. Caldwell's invitation. By unanimous vote it was decided to hold the first annual convention in conjunction with the American Hospital Association, September 13, 14, and 15, 1933, in Milwaukee, Wisconsin. Mrs. Gertrude Fife was appointed to take charge of arrangements.

With the announcement that the National Association of Nurse Anesthetists would hold its annual meetings with the American Hospital Association, a great deal of interest was manifested by the anesthetists throughout the country. Anesthetists began to send in applications for membership, and outstanding dues were paid up. This was substantiated by the Treasurer's report, read at the annual meeting in Milwaukee, Wisconsin. There were 503 signed-up members and a total of fees and dues received of $2,066.67.

The program was very interesting at this first annual meeting. The committee in charge of arrangements had no difficulty in obtaining prominent people who were willing to be on the program and help the anesthetists to make their organization a success. Mrs. Gertrude Fife was elected President and Miss Mary Lucille Goodman was appointed Executive Secretary. A report of this meeting was sent out to all anesthetists on the mailing list of the Association.

The second Annual Meeting was held in Philadelphia, Pennsylvania, September 25th to 27th, 1934. The membership had now reached 674 members. One of the accomplishments of this meeting was the authorization given the Officers of the Association to initiate a quarterly Bulletin to be sent to the members at large and in this way keep them informed of the developments. Mrs. Gertrude Fife was re-elected President for another year.

At the third Annual Meeting held in St. Louis, Missouri, October 1st to 3rd, 1935, Miss Hilda R. Salomon was elected President. Miss Salomon held the office of President for two years, being re-elected at the fourth Annual Meeting held in Cleveland, Ohio, September 29th to October 1st, 1936. At this meeting in Cleveland the National Association of Nurse Anesthetists was presented with a gavel from the Alumnae Association of the University Hospitals of Cleveland School of Anesthesia, as a testimonial to its founder, Miss Agatha C. Hodgins.

During these years the volume of secretarial work at National Headquarters in Cleveland had increased so tremendously that it necessitated the employment of a full-time Executive Secretary. The Board of Directors also deemed it advisable to move Headquarters to a more central location. On October 16, 1937, Miss Anna Willenborg was appointed Executive Secretary, and Headquarters was moved to 18 East Division Street, Chicago, Illinois.

The Fifth Annual Meeting was held in Atlantic City, New Jersey, September 14th to 17th, 1937. Miss Miriam G. Shupp was elected President. The membership at this time was 1,276 active members and 74 associate members.

The transfer of Headquarters from the State of Ohio to the State of Illinois necessitated a change in the Article of Incorporation, as the Code of Regulations had to be revised to meet the needs of the Association. On October 8, 1939, a Certificate of Dissolution was received from the Secretary of the State of Ohio and on October 17, 1939, a Certificate of Incorporation of the American Association of Nurse Anesthetists was received from the Secretary of the State of Illinois. To comply with the laws of the State of Illinois, the Certificate of Incorporation was recorded in the office of the County Recorder, Chicago, Illinois.

The changing of the name of the National Association of Nurse Anesthetists to the American Association of Nurse Anesthetists was adopted at the Annual Meeting held in Toronto, Canada, September 26th to 29th, 1939. Miss Miriam G. Shupp was re-elected President at this meeting.

The organization of the individual States and also the grouping of the States into Assemblies has been greatly helped by the work of the Executive Secretary at Headquarters. After Miss Willenborg's resignation in 1941, Miss Mary Elizabeth Appel was appointed Executive Secretary. Miss Appel left the Association October 1, 1943.

During the years 1940 to 1943, the Annual Meetings were held at Boston, Massachusetts, Atlantic City, New Jersey, St. Louis, Missouri and Buffalo, New York. Miss Helen Lamb served as President of the Association during 1940 and 1941, and Mrs. Rosalie McDonald was President for 1942 and 1943. The membership at the end of the year 1943 was 3,041 members.

As it has been necessary, the Constitution and By-Laws have been revised at the Annual Meetings of the Association as its growth has demanded it.

ANN PRIESTER

LIBRARY COMMITTEE

(Year 1943-44)

For the year 1942-43 the Library Committee functioned as a unit of the Public Relations Committee. During this time a plan for financing, presenting to, and collecting from the states was outlined. The material at Headquarters was listed. A plan was devised for purchasing, indexing and lending the books. This plan was presented to, and approved by the Board of Trustees.

In September 1943, the Board of Trustees voted to make the Library Committee a separate committee, and the committee was instructed to place the plan before the State Associations. Letters were written to all of the organized states, thirty in number, explaining the plan in detail, asking for their suggestions, and for their pledge of a yearly contribution, the amount of the contribution being based upon membership in the state.

It is with regret that the committee reports that only fifteen of the states have answered.

Three approved the plan and pledged to contribute yearly.

One tabled the suggestion for the duration.

Three wished to wait for a state meeting.

One wanted to await developments in general before pledging.

Seven did not approve. Of this number *two* gave no reason; *two* had tried such a plan in their own state without success; *two* felt they would rather have it to be a state project of the American Association of Nurse Anesthetists; *one* did not have enough money to make a yearly contribution.

The suggestion was made that we contact the Librarian of the American Medical Association, and of the American College of Surgeons, and see if we might arrange to have the use of either or both of these libraries. Miss Campbell graciously offered to do this for the committee. The Library of the American Medical Association is available only to subscribers of their scientific journals, and therefore could not be used by our members. The report from the Library of the American College of Surgeons is favorable. It was necessary for the Association to make written application for the privilege of using this library, and the application will have to be passed upon by the Board of Trustees of the American College of Surgeons. The decision will be published in the Bulletin, when it is received.

During the past two years we have received contributions from the following:

Illinois Association of Nurse Anesthetists, twenty-five dollars; California Association of Nurse Anesthetists, ten dollars; Texas Association of Nurse Anesthetists, twenty-five dollars; and a personal contrtibution of three dollars from Miss Louise Schwarting of Fort Dodge, Iowa.

I wish to offer the thanks of the committee and of the Association for these generous contributions.

The committee will welcome any suggestions and comments on this project. We only know that our work is worth while by the response of the entire membership.

Respectfully submitted,

EXIRE O'DAY
JEWELL FINK
IONE WESSINGER
MRS. JACK K. CHILDRESS, *Chairman*

ANESTHESIA RECORDS COMMITTEE

This committee was appointed by the Board of Trustees in September 1943.

The purpose of the committee is to prepare standardized anesthesia records, which will be adaptable to and fulfill the needs of any anesthesia department, irrespective of the bed capacity or the nature of the hospital.

During the past year the committee has completed the preliminary work of a two-part program—namely, a permanent anesthesia record system to be retained within the department, and an individual anesthesia record.

After selecting the better features of each system inspected and studied, the committee has submitted a record which fulfills the following requirements:

1. Conciseness
2. Completeness
3. Compactness
4. Simplicity in operation
5. Time and labor saving
6. Economy in initial cost and maintenance.

It is unfortunate that because of wartime restrictions, several outstanding record companies were unable to demonstrate their equipment. It is quite possible, however, that by the time the records are acceptable, steel cabinets and the like will be available to civilian hospitals.

At the present time, the committee is accumulating many individual anesthesia record systems for study. This is the second phase of the Anesthesia Records Committee program.

Respectfully submitted,

VIRGINIA M. FOLEY
ANN R. SCANLON
MARGARET F. SULLIVAN, *Chairman*

REVISIONS COMMITTEE

Inasmuch as the Revisions of the By-laws of the American Association of Nurse Anesthetists were being formulated by the Examination program Committee, of which Miss Miriam G. Shupp is Chairman, when this Committee was appointed we actually assisted but little.

However, the Chairman did meet with the Board of Trustees and Miss Shupp to study the proposed By-laws. There were changes suggested by this Committee which were made. We feel that due credit must be given Miss Shupp, however, for the splendid work which she has done in revising the By-laws to fit the needs of the pending examination program.

Respectfully submitted,

THERESA A. HAMMOND
MAGDALENE SUTER
HELEN YOUNG WALKER, *Chairman*

(See Revised By-laws, page 261.)

EXAMINATION PROGRAM COMMITTEE

Lack of a quorum at the one-day convention meeting in 1943 in Buffalo prevented action being taken on recommendations made by this Committee at that meeting.

For clarification of this (the 1944) report, and for proper disposition of certain of the recommendations of the 1943 report, the 1943 report will now be read (see pages 259-260 November, 1943, Bulletin).

The report of this Committee's work for this year has already been made known to you through the proposed By-laws which were published in the August, 1944, issue of the Bulletin. The mechanics of an examination program worked out by this Committee were incorporated in the By-laws in collaboration with the Revisions Committee.

The one essential difference between the program as originally presented and the revision or modification as it now appears in the By-laws and Standing Rules is the abolishment of certification. The program as it is now presented for action by the membership provides for examination of applicants for membership in the Association without the so-called certification either of those coming in by examination or of the present membership by waiver.

These points will be discussed when the Revisions Committee makes its report and the By-laws revisions are brought up for action.

This Committee recommends:

1. That recommendation No. 1 of the 1943 report be now accepted.
2. That the report of this Committee as incorporated in the proposed By-laws and Standing Rules be adopted, and that applications postmarked after midnight of October 15, 1944, shall be acted upon under these newly adopted By-laws.

3. That within six months the total associate membership shall re-apply. Those who have been Associate Members for two or more years shall re-apply as new members. If accepted, they shall be accepted without examination to active membership status. Their eligibility for inactive membership shall then be determined upon application for inactive membership. The present Associate Members who have been Associate Members for less than two years shall make application for inactive membership.

Respectfully submitted,

Gertrude Fife
Helen Lamb
Miriam G. Shupp, Chairman

(See Revised By-laws, page 261.)

September 24, 1944

IMPORTANT NOTICE

Starting with the February, 1945, issue, the Bulletin of the American Association of Nurse Anesthetists will be published from Chicago. All correspondence in regard to the Bulletin should be directed to the Executive Secretary, Miss Anne M. Campbell, 18 East Division Street, Chicago 10, Illinois.

Miss Edith-Helen Holmes, Norwegian-American Hospital, 1044 N. Francisco, Chicago 22, Illinois, has been appointed Chairman of the Publishing Committee.

PUBLISHING COMMITTEE

Financial Statement

DEFICIT in Publishing Fund August 31, 1943		$ 4.38
Publishing Fund accumulated September 1, 1943 to August 31, 1944 (subscription price of Bulletin—50¢, deducted from dues of each individual member, plus sale of Bulletins to non-members)	$1639.00	
Income from Sale of Advertising, September 1, 1943 to August 31, 1944 (including August, 1944, billings)	1500.00	3139.00
		$3134.62
Total Cost of Publishing Bulletin, including postage, for year ended August 31, 1944		3032.74
(total cost of publishing membership list in August 1944 issue approximately $500.00; in 1943, $440.00)		
SURPLUS August 31, 1944		$ 101.88

Comparative Statistical Report for Years 1933-1944 *inclusive:*

Year	*No. of pages exclusive of advertising*	*No. of copies distributed*	*Advertising: Number of pages*
1933 (1 issue)	43	1,500	5
1934 (1 issue)	44	1,500	6
1935 (3 issues)	149	3,671	16
1936 (3 issues)	185	4,600	19¾
1937 (4 issues)	206	6,400	28
1938 (4 issues)	232	7,075	29
1939 (4 issues)	274	8,600	30
1940 (4 issues)	297	9,500	30
1941 (4 issues)	356	10,350	32
1942 (4 issues)	301	11,150	27
1943 (4 issues)	262	11,875	26
1944 (4 issues)	231	13,335	33

It has been extremely difficult this year to obtain papers for publication in the Bulletin. The surgeons are overworked and the anesthetists are making a great effort to keep the anesthesia service as nearly as possible on a pre-war level, with a greatly decreased number of anesthetists available. In addition, many of the sectional meetings from which we formerly obtained papers have been cancelled. To get prompt and good printing service, once we were ready to send the material to press, has also been difficult because the publishing houses are running short of experienced help. In general, any activity of this nature has meant that those who have contributed to the finished product have been forced to work under pressure and extreme difficulties.

Starting with the report of the first annual meeting in 1933, to date a total of 89,556 copies of all issues has been printed (thirty-nine issues in all), covering 2580 pages of reading matter exclusive of advertising, and including one hundred twenty-four papers by nurse anesthetists and one hundred thirty-four by doctors.

I have been responsible for the publication of the Bulletin since it was first started in 1933. For the last three or four years I have repeatedly asked the Board of Trustees to relieve me as Chairman of the Publishing Committee. I have felt that the Bulletin was growing beyond me and that I had made as great a contribution to it as I was capable of doing with the amount of time I have to devote to it. I also felt that the Bulletin should be published at the national headquarters in Chicago, and that the Association should employ a trained editor to take the responsibility of this important work so that the Bulletin could take its rightful place with other outstanding publications.

I wish again to extend my thanks to all officers and committee chairmen and members who have cooperated in getting the material together for the Bulletin during the past years; to the secretaries of the state organizations who have sent in programs and reports, and to the nurse anesthetists and the doctors who have contributed the papers which have been the heart of the publication.

There is one thought I should like to leave with you. The anesthetists are capable of writing good scientific papers. You have a store of knowledge and a wealth of experience from which to draw, and it is unfortunate that more of our members are not interested in writing. Do not wait to be asked to contribute a paper to our Bulletin. You will find in the medical profession many doctors as well as anesthetists, who, not because of lack of material, are hesitant about putting their findings down in writing. Dr. Mayo once told the doctors on the Mayo staff that the writing of medical papers usually benefited the author more than the reader.

There are many helpful, instructive books on the writing of scientific papers, such as "The Writing of Medical Papers" by Mellish-Wilson, published by W. B. Saunders Company, Philadelphia; "Medical Writing," by Morris Fishbein, published by the American Medical Association, Chicago; and "Medical Writing: Some Notes on Its Technic," by Dr. James H. Dempster, published by Bruce Publishing Company, St. Paul, Minn

The accumulation of data and the preparation of a scientific paper are tedious, but when you have portrayed the results in graphs and comparative figures and you are ready to analyze your findings, you will find it very engrossing and you may find out something you did not know was actually happening in your clinic. The older anesthetists on the staff should encourage the younger anesthetists to keep full and accurate records, to learn how to write papers and how to present them. Our Bulletin needs more papers written by nurse anesthetists.

Respectfully submitted,

HARRIET L. ABERG
MARGARET F. SULLIVAN
KATHARINE K. NESBIT
GERTRUDE L. FIFE, *Chairman*

CURRICULUM COMMITTEE

The Curriculum Committee held no meetings during the year. Considerable correspondence was carried on between the chairman, the committee members, the Executive Secretary, the officers of the Association, and other members of the Association.

This summary of the work of the Curriculum Committee is given as a progress report; for two projects were started this year. A much longer time is needed to complete them. A tentative study on the subject of "Curriculum Revision" was first prepared; and later, a study of the qualifications for teachers in anesthesia, or "Faculty Preparation," was started on its way. Initial reports of both projects were submitted to the Board of Trustees for discussion.

The Executive Secretary, at the suggestion of the Executive Committee, obtained curriculum outlines from several of the schools; and these outlines were reviewed by the Committee. We find that these schools are following the present curriculum of the Association as nearly as possible. In the work of this Committee, we were very fortunate in obtaining this interesting and valuable material. We can report that the idea of university affiliation for the anesthesia course is taking hold in the schools. Some of the anesthesia courses receive university credit.

The chairman feels that we have had most gratifying responses to inquiries. Our appreciation and thanks go to the Executive Secretary, Miss Anne Campbell, for her counsel and cooperation. With such support, we hope that next year's report will show a continuation of the work on the subjects of "Curriculum Revision" and "Faculty Preparation."

Respectfully submitted,

ELETTA B. ENGUM
EDITH-HELEN HOLMES
ALMA WEBB, *Chairman*

COMMITTEE ON EDUCATION

The war-time shortage of trained anesthesia personnel available to civilian hospitals has resulted in stimulation of interest in the possible establishment of new courses of training for nurse anesthetists throughout the country.

Many of the ensuing projected courses brought to our attention, proved upon examination to be both ill-advised and unjustified. Need became obvious, therefore, for some authoritative statement setting forth sound basic principles that must necessarily underlie such projects. To service this need, the Committee on Education has prepared a bulletin for issuance to inquirers who request information in this connection. The bulletin, titled "Essentials of an Acceptable School of Anesthesia for Graduate Nurses" is expected to aid adequately staffed institutions to increase facilities for such proper training, but vigorously deprecate any even temporary debasement of the high standards of education that must of necessity exist in, and are vital to, acceptable preparation for entrance to our field.

With the projection of these newer courses, whose graduates would inevitably become candidates for admission to membership in our Association, necessity became apparent for authoritative information concerning the scope and soundness of the training that are being offered. Therefore, a new and comprehensive questionnaire was prepared and issued, which has met with open favor by the institutions to which it has been directed.

Through the means of this instrument your Committee has contacted 116 hospitals, of which about 50% have already submitted to us intimate details of the functioning of their courses of training in this subject. Indications are that all will have reported within a very short period.

A preliminary examination of these executed questionnaires that have thus early reached us (they represent courses conducted at thirty-two hospitals located in sixteen States) demonstrates the interesting fact that, excluding army hospitals, by far the great majority of courses now providing training for nurse anesthetists, give them wider education and clinical experience in the administration of desired *inhalation* surgical anesthesias, than in the less preferred *injectional* types for major general surgery. It must be said, however, that the didactic aspects of the various courses of training vary so widely from each other in the matter of hours of classroom instruction, organization of teaching material and number of subjects taught, that fuller study is necessary before concrete conclusions can be reported. It is expected that the results of such study and evaluation, when the project is completed, will implement significant recommendations to the Board of Trustees and to the Committee on Examinations.

Janet McMahon
Miriam G. Shupp
Helen Lamb, *Chairman*

EDUCATIONAL EXHIBIT COMMITTEE

The Educational Exhibit Committee sent questionnaires to approximately two hundred departments of anesthesia throughout the United States asking for information regarding their organizational set-up, the number of anesthetists, hours of duty, yearly number of anesthetics given, and the operating room charges. The response to this questionnaire was not as good as hoped for, therefore a complete study in the form of graphs could not be made. However, they showed enough information to prove the need for more standardization of departmental policies. The returned forms are assembled in a note book to provide our members with the opportunity of seeing what other hospitals are doing.

A letter was sent to each school of anesthesiology asking them to submit the following:

(a) School prospectus
(b) Application forms
(c) Reference blanks
(d) Physical examination blanks
(e) Students' progress blanks and any others kept by the school or student
(f) Advertisements showing where published
(g) Certificate or diploma

(h) A list of visual aids used in teaching and a statement as to how they may be procured.

These were submitted in a note book stating "Forms Used by Schools of Anesthesia." The material received showed marked variation in forms and indicated the necessity for more uniformity of forms and records in the schools.

All available anesthesia textbooks and works on related subjecst are being exhibited.

The manufacturers of anesthetic equipment as well as pharmaceuticals have shown a fine spirit of cooperation in providing reprints on current literature and charts.

A graph indicating the annual growth of the American Association of Nurse Anesthetists and a map showing the organized and unorganized states, membership of each and boundaries of the Assemblies, prove that our Association is making consistent progress.

Anesthetists were urged to submit "Departmental Handies" in the form of home-made equipment used for the administration of anesthetics or for inhalation therapy.

The committee recommends that the American Association of Nurse Anesthetists consider making application for an exhibit at the annual meeting of the American Medical Association, The American College of Surgeons, and the American Nursing Association; this exhibit to serve as an information center.

Respectfully submitted,

SISTER MARY LASALETTE
BILLIE CARAWAY
MARY SNIVELY
MARY ELLEN MCCUE
MARY BELL FUSILIER
ESTHER MYERS-STEPHENSON, *Chairman*

MEMBERSHIP COMMITTEE

The Membership Committee received and studied 441 applications this year.

Applications accepted for active membership.........	342
Applications accepted for associate membership.....	1
Applications pending	24
Applications rejected	56
Applications deferred	18

I feel that it should be explained that the decisions of the Membership Committee are governed by the By-laws. If a rejected applicant questions the Committee's decision or if there is a border-line case, those applications are referred to the Board of Trustees and the decision of the Board is final.

With the examination program going into effect, all deferred applicants will be notified and advised what steps to take in regard to the examination.

MYRA VAN ARSDALE
MYRN E. MOMEYER
LUCY E. RICHARDS, *Chairman*

RESOLUTIONS COMMITTEE

Whereas, the reports of the various committees give evidence of the untiring efforts of their members in working for the advancement of the Association, and

Whereas, the outstanding speakers appearing on the program show the efforts of the members of the Program Committee, and

Whereas, the splendid hospitality provided in this city has met with appreciation on the part of those present, and

Whereas, the members attending this meeting are cognizant of the tremendous amount of work accomplished by the Board during the past year under great handicaps, therefore

Be it resolved, That we express our gratitude to the American Hospital Association for the privilege of again meeting with them.

Be it resolved, That the delegates representing the various states transmit to their Association the programs presented by the various committees, and therefore

Be it resolved, That a letter of appreciation be sent to the various speakers, and therefore

Be it also resolved, That the Association herewith express its thanks to all the members of the Local Arrangements Committee, and therefore

Be it further resolved, That the Association express its implicit confidence in the Board of Trustees in planning for the future of the organization.

Therefore this Committee makes the following recommendations:

1. That during the coming year each and every member of the Association make every effort to promote the aims and objectives of this Association as presented at this meeting.
2. That considering the special importance of the work of our organization each state be urged to have representation at our next annual conference.

Respectfully submitted,

BILLIE CARAWAY
ANNE M. CAMPBELL
HILDA SALOMON, *Chairman*

AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

OFFICERS ELECTED

President	Hazel G. Blanchard Samaritan Hospital, Troy, New York
1st Vice-President	Margaret F. Sullivan Roosevelt Hospital, New York, N. Y.
2nd Vice-President	Edith-Helen Holmes Norwegian-American Hospital, Chicago, Illinois
Treasurer	Gertrude L. Fife University Hospitals, Cleveland 6, Ohio
Trustees	Palma A. Anderson Deaconess Hospital, Minneapolis, Minnesota
	Martha Bichel Franklin Hospital, San Francisco, California
	Myra A. Van Arsdale St. John's Hospital, Cleveland, Ohio
	Alma Webb Baylor Hospital, Dallas, Texas

ACTIVITIES OF STATE ASSOCIATIONS

LOUISIANA

Officers Elected:

President	Ellen Marie McMahon Mercy Hospital, New Orleans 13
Vice-President	Mrs. Mary Hurff Coco 2029 Benefit St., New Orleans 17
Secretary	Mrs. Rosalie G. German 415 Codifer Ave., Metarie, New Orleans 20
Treasurer	Mattie T. Word 1410 St. Andrew St., New Orleans 13
Historian	Katie R. Graves P. O. Box 1941, Alexandria
Directors	Margaret Price Mary Koenig Dorothy Duncan Elizabeth Ranna

MICHIGAN

The Michigan Association of Nurse Anesthetists will hold its eighth anniversary meeting on November 18, 1944, at 7:30 P.M., in the Washington Room of the Book-Cadillac Hotel, Detroit. President Ethel M. Moir will preside. The program will include a paper on "Anesthesia in Eye Surgery," by J. Conrad Gemeroy, Detroit.

An informal talk on the meeting of the Tri-State Assembly of Nurse Anesthetists will be given by Mrs. Mae B. Cameron, Chief Anesthetist, Ravenswood Hospital, Chicago, Illinois, Chairman of the Tri-State Assembly.

ETHEL M. MOIR
President

NORTH CAROLINA

The North Carolina Association of Nurse Anesthetists will hold its annual meeting October 14, 1944, at 3:30, in the Roanoke Room of the Sir Walter Hotel, Raleigh. The President, Mrs. Addie F. Medlin, will preside.

The meeting will be opened by the Reverend M. O. Sommers of the First Presbyterian Church, Raleigh. The business meeting will be followed by a discussion of "The Relation of the Anesthetist to the Surgeon," by Ivan M. Proctor, M.D., F.A.C.S., and Kenneth Dickinson, M.D., F.A.C.S.

Following a report of the National Convention, held in Cleveland, Ohio, there will be a lecture on "The Chemistry of Ether," by R. L. White of Spartanburg, South Carolina. The Round Table will be under the direction of Alice R. Richards, Duke University Hospital, Durham. A social hour will be followed by the banquet.

Mrs. Addie F. Medlin
President

CORRECTIONS IN MEMBERSHIP LIST

Lt. Flossie Gamble was listed in the August issue as a civilian anesthetist at Camp Blanding, Florida. This was incorrect. Lt. Gamble is a member of the Army Nurse Corps and should have been listed with the members of the Alabama Association of Nurse Anesthetists.

Ensign Winnie B. Hamlett was incorrectly listed in the Ohio Association members in the August issue, as Ensign Winnie B. Hamlin.

Finney, Mrs. Thelma, 207 Park Drive, Couer d'Alene, Idaho
Yoakum, Mrs. Myrtle,*** P. O. Box 55, Homer, Ohio

REVISED BY-LAWS

ARTICLE I

MEMBERSHIP

Section I. General Requirements

Individuals and organizations in the United States of America, its territories, possessions and dependencies, and in the District of Columbia, shall be eligible for membership in this Association, as herein specified.

Section II. Membership Classification

A. Membership in the Association shall consist of two general classes—individual and organizational. Individual membership shall consist of three classes — Active Members, Inactive Members, Honorary Members. Organizational membership shall be known as Institutional Members.

B. Active Members may, upon payment of dues as specified in these By-laws, be listed as Contributing or Sustaining Members, retaining the same type of membership and privileges as originally conferred.

Section 3. Eligibility requirements for an Active Member

Any woman may be eligible as an Active Member of the Association who fulfills requirements A, B and C as follows:

A. *General*

1. Graduation from an accredited high school or its equivalent.

2. Graduation from an accredited school of nursing.

3. State registration.

4. Annual renewal of registration if so required in the state in which she is registered.

5. Good moral and ethical standing in the profession.

B. *Special training in Anesthesiology* (Applicant shall fulfill one of the three following requirements:

1. Graduation from a school of anesthesiology giving an organized course of not less than six months' duration and otherwise meeting the standards of the Association.

2. Graduation from a school of anesthesiology prior to 1939 which gave an organized course of four to six months' duration.

3. Administration of anesthetics for six years continuously immediately prior to 1939, in hospitals approved by the American College of Surgeons, and administration of anesthetics continuously since 1939 in hospitals approved by the American College of Surgeons.

C. *Examination*

Successful passing of a qualifying examination as set by the Board of Trustees of the Association.

Section 4. Inactive Members

A. Inactive membership may be granted to Active Members not actively employed in anesthesiology. Application for transfer to inactive membership shall be made to the Executive Secretary on a form provided by the Association and shall be accompanied by a statement signed by two Active Members certifying that the applicant is not actively employed in anesthesiology. Applications for renewal of inactive membership shall be made annually and shall be accompanied by a statement signed by two Active Members certifying that the applicant is not actively employed in anesthesiology. The approval of all applications for inactive membership and for renewal of inactive membership shall rest with the Credentials Committee.

B. An Inactive Member may resume her status as an Active Member by payment of current dues for an Active Member.

C. An Inactive Member shall retain all the rights and privileges of an Active Member.

Section 5. Honorary Members

Honorary membership may be conferred by a unanimous vote of the voting body, at any Annual Meeting, on persons who have rendered distinguished service in Anesthesiology or to the American Association of Nurse Anesthetists, the names having been recommended by the Board of Trustees. Members of the American Association of Nurse Anesthetists elected to an honorary office or membership shall have all the rights and privileges of the Association but shall be exempt from payment od dues. Non-members elected to an honorary office or membership shall have all the rights and privileges of the Association, except that they shall not be entitled to hold office or vote and shall be exempt from the payment of dues.

Section 6. **Institutional Members**

Institutions or professional organizations, public or private, engaged in a medical care program, shall be eligible for Institutional Membership.

Section 7. **Application Procedures**

A. In unorganized states, candidates for membership shall make application through the Executive Secretary of the Association on forms provided by the American Association of Nurse Anesthetists.

B. In organized states, candidates for membership shall make application through the secretary or secretary-treasurer of the state association on forms provided by the American Association of Nurse Anesthetists. The state committee on credentials shall make a preliminary investigation of candidates and shall forward the application together with the committee's recommendations to the Executive Secretary of this Association.

C. All applications shall be referred by the Executive Secretary to the Committee on Credentials of the Association. This Committee shall carefully investigate and consider the professional and personal qualifications of each applicant. Upon the findings of this Committee the applicants for individual membership shall be approved or rejected for examination.

D. All candidates for membership shall be notified of the decision of the Committee on Credentials by the Executive Secretary of the Associattion.

Section 8. **Re-application and reinstatement**

A. An Active or Inactive Member dropped for non-payment of dues may be reinstated to membership during the fiscal year (September 1 to August 31 inclusive) in which membership lapsed by payment of current dues plus a penalty fee of three dollars ($3.00).

B. An Active or Inactive Member dropped for non-payment of dues may be readmitted to membership after this period only as a new applicant in accordance with current membership eligibility requirements.

C. An Active or Inactive Member, once resigned, may be readmitted to membership after the fiscal year in which she resigned only as a new applicant in accordance with current membership eligibility requirements.

Section 9. **Pins, Emblems and Designation MAANA**

Active Members, Inactive Members and previous Active Members elected to honorary membership or office, may wear the official pin and emblem of the Association. They may use the the designation M.A.A.N.A. following their names upon articles for publication and upon other appropriate occasions.

If such a member resigns, is expelled or dropped from membership for non-payment of dues, she shall discontinue the use of the pin, the emblem and the designation MAANA.

ARTICLE II

GEOGRAPHICAL ORGANIZATION

Section 1. **State Associations**

Members so located as to permit state meetings and group participation in the Association may organize as state associations and upon approval of the Board of Trustees become affiliated state associations. Only members employed or living within the state shall be eligible for membership in any such state association. State associations desiring to become affiliated shall make application on the form provided by the Board of Trustees of this Association.

The application shall be submitted to the Board of Trustees after it has been executed pursuant to the affirmative vote of a majority of the members entitled to vote in such state association at a meeting called for this purpose.

The application, with a copy of the state constitution and by-laws, shall be sent to the Executive Secretary of the American Association of Nurse Anesthetists.

The state association shall agree to accept, without reservation, the requirements of the By-laws of the American Association of Nurse Anesthetists and to cooperate fully with this Association in the purposes for which it was formed.

The state association shall pay into the Treasury of the American Association of Nurse Anesthetists annual dues in the amount as specified under Article IX, Section I for every member appearing on its roll during the time that such state association is affiliated with the Association.

In no event shall the American Association of Nurse Anesthetists be liable for debts or obligations, of any kind whatsoever, incurred by any state association which is affiliated with this Association, except such obligations as may be expressly entered into and authorized by the Board of Trustees of this Association.

Any affiliated state association which fails to comply with the By-laws and Standing Rules of the American Association of Nurse Anesthetists shall be dropped as an affiliate by the unanimous vote of the Board of Trustees, provided that due notice to comply has been given at least three months before the vote is taken and that during this time, said association has failed to act in accordance with these requirements.

Section 2. **Duties of State Associations**

Affiliated state associations shall send to the Executive Secretary of this Association the names and addresses of all officers and committee chairmen immediately after their election or appointment; shall adopt and keep in force by-laws consistent with the By-laws of this Association and shall refrain from adopting any changes or modifications in its by-laws without first obtaining the written approval of the Committee on Revisions of this Association and shall keep on file with this Association, at all times, a complete and up-to-date copy of its constitution and by-laws; shall comply with all the provisions of the By-Laws of the American Association of Nurse Anesthetists; and shall report to the Board of Trustees of this Association when and as requested.

Section 3. **Transfers**

A member who changes the location of her employment from any state to another in which there is an affiliated association shall be eligible to membership in the state association of her new location.

Section 4. **Unorganized States**

States where members are too widely separated geographically and too few in number to permit group meetings and group participation in the Association shall be known as unorganized states.

Section 5. **Assemblies**

State organizations and members in unorganized states may join together for common meetings and promotion of common interests. These groups shall be known as Assemblies and shall, in so far as possible, conform to the groupings of the American Hospital Association.

Any group of states wishing to form an Assembly shall make application to the Board of Trustees of this Association, such application to be signed by a representative from each state comprising the Assembly.

Each Assembly shall elect a Chairman and such other officers as shall be necessary to meet the requirements of the Assembly; shall raise necessary funds for its own use; shall have no financial obligation to the American Association of Nurse Anesthetists; and shall be governed by Standing Rules only.

ARTICLE III

DONORS AND BENEFACTORS

Contributors to the Association of sums not less than one hundred dollars ($100.00) shall be known as Donors, and contributors of five hundred dollars ($500.00) or more shall be known as Benefactors.

The names of all contributors shall be recorded in the annals and history of the American Association of Nurse Anesthetists.

ARTICLE IV

GOVERNING BODIES

Section 1. **Board of Trustees**

A. *How constituted*

There shall be a Board of Trustees which shall consist of the President, First Vice-President, Second Vice-President, together with six (6) members of the Association. The President shall be the Chairman of the Board of Trustees.

B. *Election of Trustees*

The election of Trustees shall take place at the Annual Meeting. With the exception of the President, First Vice-President and Second Vice-President, the members of the Board of Trustees shall be elected to serve as follows: one (1) member for a term of one (1) year and the remaining members for terms of two (2) years. In 1944 two (2) members shall be elected for terms of two (2) years and two (2) members shall be elected for terms of three (3) years and thereafter as specified in this Article and Section.

No member of the Association shall serve as Trustee for more than two terms of office consecutively or be re-elected or appointed until after a lapse of one year following completion of two consecutive terms.

C. *Duties and Powers*

The Board of Trustees shall function as the responsible body of the Association. By virtue of the power herein delegated to it by the membership it shall be responsible for administering the affairs of the Association, transacting of general business, policy making, program planning; for adopting the budget, managing the funds and properties of the Association, authorizing the expenditure and providing for an annual audit of the Association's accounts by a certified public accountant; for presenting to the membership at the Annual Meeting a report of the business transacted during the year; for presenting to the membership a ballot for elections and providing for election procedures; for passing upon applications of state associations desiring affiliation with the Association; for establishing rules and procedures for the committees and for the discipline of members of the committees; for determining matters of policy concerning the curriculum and general setup for the schools of anesthesiology; for appointing members to fill vacancies in its own membership or among the Officers of the Association for the unexpired term of office; for voting upon, by mail, all matters that require action by the Board of Trustees between its meetings after notice of proposed action is sent to each member of the Board of Trustees; for appointing an Executive Secretary, defining her duties, fixing her compensation and removing said Executive Secretary for reason; for appointing an Historian, presenting at the Annual Meeting a written history of the current year, and preserving these records in the archives of the Association; for keeping the membership informed of current needs and trends in the field of anesthesiology and directing the program accordingly to the end that the purposes and goals of the Association shall be furthered.

D. *Meetings and Quorum*

1. Regular meetings of the Board of Trustees shall be held immediately preceding and immediately following each Annual Meeting.

2. Special meetings of the Board of Trustees may be called by the President, at such times as the business of the Association may require, or upon written request of five (5) members of the Board of Trustees. Notices of special meetings shall state the purpose for which they are called.

3. A majority of the members of the Board of Trustees shall constitute a quorum.

Section 2. **Executive Committee**

A. *How Constituted*

There shall be an Executive Committee consisting of the President, the First Vice-President and two other members of the Board of Trustees appointed by the Board of Trustees at the Annual Meeting. The President shall serve as Chairman.

B. *Duties*

The Executive Committee shall act between meetings of the Board of Trustees. It shall serve in an advisory capacity to the President and the Executive Secretary and shall carry out such responsibilities as may be delegated to it from time to time by the Board of Trustees. No action taken by the Executive Committee shall be effctive unless ratified by the Board of Trustees.

C. *Meetings and Quorum*

1. The Executive Committee shall hold a meeting at least twice during the year and at such other times as the developments and needs of the Association indicate.

2. A majority of the Committee shall constitute a quorum.

ARTICLE V

OFFICERS

Section 1. List of Officers

The Officers of this Association shall be a President, First Vice-President, Second Vice-President and Treasurer.

Section 2. Terms of Office

A. The President, First Vice-President and Second Vice-President shall be elected for a term of one year and shall be eligible for one immediate re-election.

B. The Treasurer shall be elected for a term of one year and shall be eligible for re-election.

Section 3. Eligibility

A. No member shall be eligible for the office of President who has not served on the Board of Trustees for at least one (1) year.

B. No member shall hold office in the American Association of Nurse Anesthetists and at the same time hold office in a state association.

Section 4. Duties

A. The President shall preside at the Annual Business Meeting of the membership, at all meetings of the Board of Trustees and Executive Committee; shall with the approval of the Board of Trustees, appoint all standing and special committees unless otherwise specified in these By-laws and be a member ex-officio of all committees except the Committee on Nomination; shall authorize the attendance of the Treasurer at any meetings of the Board of Trustees and of the Executive Committee as the needs of the Association indicate, the expenses of the Treasurer to be paid by the Association; shall countersign all checks; shall prepare and read at each Annual Meeting and at the Pre-convention meeting of the Board of Trustees a condensed narrative report of the work of the year; shall perform all other acts and duties of a general nature as may be incident to her office and as may be from time to time required of her by the Board of Trustees.

B. The First Vice-President shall perform all the duties of the President in the event of the President's absence, disability, resignation, removal from office or death.

C. The Second Vice-President shall perform all the duties of the President in the event of the President's and First Vice-President's absence, disability, resignation, removal from office or death.

D. The Treasurer shall collect and receive all monies of the Association, pay all bills and disburse funds as directed by the Board of Trustees; shall deposit funds in banks designated by the Board of Trustees; shall be bonded for such a sum as the Board of Trustees shall direct, the expenses of same to be paid by the Association; shall notify delinquent members in unorganized states and keep the Executive Secretary informed regarding delinquent members; shall have an audit of the books made by a certified public accountant at the end of each fiscal year; shall report the financial standing of the Association to the Board of Trustees and to the membership at each Annual Meeting and to the Board of Trustees upon request; shall be subject to attendance at any meetings of the Board of Trustees and Executive Committee at the call of the President, the Treasurer's expenses to be paid by the Association; shall perform all such other and further duties as may be required of her by the President or the Board of Trustees; shall deliver all monies, property and rights of the Association in her hands at the expiration of her term of office to her successor or to the President.

ARTICLE VI

THE COUNCIL

Section 1. Organization

The Officers, members of the Board of Trustees, Executive Secretary and members of the standing committees of the Association, and officers and members of standing committees of the affiliated state associations shall constitute the Council.

Section 2. Purpose

The purpose of the Council shall be to afford an opportunity to those who are responsible for administering the affairs of the Association and the affiliated state associations to come together to report on activities, to discuss organizational and functional problems and to promote the interests of the Association.

Section 3. Meetings

A meeting of the Council shall be held in connection with each Annual Meeting as designated on the program and at such other times during each Annual Meeting as shall be determined by the Board of Trustees.

ARTICLE VII

EXECUTIVE STAFF

There shall be an executive staff consisting of an Executive Secretary appointed by and responsible to the Board of Trustees and such other personnel as may be authorized by the Board of Trustees.

ARTICLE VIII

COMMITTEES

Section 1. Classification and General Regulations

The committees of the Association shall be classified as standing and special committees. There shall be the following standing committees of at least three (3) members each unless otherwise specified in these By-laws: Convention Arrangements, Credentials, Curriculum, Education, Education Exhibit, Examination, Finance, Nominating, Program, Publication, Public Relations, Revisions, Trust Fund and such special committees as may from time to time be authorized by the Board of Trustees. All committees except the Committee on Nominations and the Committee on Examinations shall be appointed by the President subject to the approval of the Board of Trustees.

Members of standing committees shall be appointed to serve for a term of three (3) years and until their successors are appointed, unless otherwise specified in these By-laws.

Members of special committees shall be appointed to serve until the work is completed for which the committee was created.

All committees shall be under the control of the Board of Trustees. Rules and regulations shall be devised by the Board of Trustees for all committees.

The chairman of each committee shall send to the President and to the Executive Secretary, copies of all important letters sent out and other matters transacted by these chairmen, which are to be presentd to the Board of Trustees if the President deems it necessary. The chairman of each committee shall be responsible for rendering a quarterly report to the Board of Trustees and a full report of the activities of the year to the Board of Trustees at its pre-convention meeting, and to the members at the Annual Business Meeting. A special report of the activities of any one committee shall be made by the chairman upon request of the President.

Any member of a committee who fails to fulfill the duties assigned to her shall be liable to dismissal from that committee upon the approval of the majority of the members of the Board of Trustees. When vacancies occur in committees between Annual Meetings, the President shall, subject to the approval of the Board of Trustees, appoint members to fill the vacancies.

The retiring chairman of each committee shall, within one month after the expiration of her term of office, deliver to her successor all papers necessary to carry on the function of this committee.

Section 2. Committee on Convention Arrangements

The Committee on Convention Arrangements shall be appointed annually. This Committee shall make all local arrangements for the Annual Meeting, the Chairman to be a resident of the city in which the Annual Meeting shall be held.

Section 3. Committee on Credentials

The Committee on Credentials shall determine the eligibility of individual applicants for examination, the eligibility of organizational applicants for membership and eligibility of applicants for inactive and for renewal of inactive membership. The Committee shall make its recommendations and notify the Executive Secretary of the Association of its decisions. When error or misrepresentation occurs, the Committee shall, subject to the approval of the Board of Trustees, have the power to rescind its actiton relating to the status of any applicant or member.

Section 4. Committee on Curriculum

The Committee on Curriculum shall in collaboration with the Committee on Education, prepare, present and revise, subject to the approval of the Board of Trustees, the curriculum recommended for the schools of anesthesiology for nurses.

Section 5. **Committee on Education**

The Committee on Education shall consist of not less than six (6) members. This Committee shall be responsible for developing and furthering educational facilities in keeping with changing needs and trends in the field. It shall formulate standdards in education for nurse anesthetists and shall in collaboration with the Committee on Curriculum recommend to the Board of Trustees for approval the Curriculum that meets these standards. It shall further be responsible for the Educational Department in the Bulletin.

The Chairman of the Committee on Curriculum and the Chairman of the Committee on Educational Exhibits shall serve as members of this Commitee, but neither shall serve as its chairman.

The Chairman of the Committee on Examinations shall be an ex-officio member of this Committee.

Section 6. **Committee on Educational Exhibits**

The Committee on Educational Exhibits shall be responsible for all educational exhibits. The Chairman of the Committee on Education shall serve as a member of this Committee but not as its chairman.

Section 7. **Committee on Examinations**

The Committee on Examinations shall be composed of five members appointed by the Board of Trustees. This Committee shall prepare for each examination to be held, a master set of examination questions (written, oral and practical) with instructions, and shall grade the papers of the examinees.

Section 8. **Committee on Finance**

The Committee on Finance shall be composed of the Treasurer and at least two other members and shall be responsible for long range planning of the financial structure of the Association and for the preparation of the annual budget. The Chairman shall be chosen by the Board of Trustees.

Section 9. **Committee on Nominations**

The Committee on Nominations shall be composed of five members appointed by the Board of Trustees. This Committee shall prepare a ballot for each Annual Meeting, consisting of the names of one or more members for each office, who are qualified to hold office and who have consented to serve, if elected to the office for which they have been nominated.

On or before each January 1 preceding the Annual Meeting, the Committee shall issue to each affiliated state association a form on which the state association shall submit the name of one nominee for each office to be filled. This form shall be signed by the president or the secretary of the state association and be returned to the Committee by May 1 preceding the Annual meeting. On May 1 of each year the Committee shall prepare the ballot from the list of names submitted, or if the nominees whose names are so listed do not meet the necessary qualifications, the Committee shall have power to substitute names of nominees with proper qualification. The final draft of the ballot shall be sent to the Board of Trustees through the Chairman not later than May 15 of each year, and such draft, after study, shall be returned by the Chairman of the Board to the Chairman of the Committee. The Committee shall then contact these members for their consent to serve if elected.

Section 10. **The Committee on Program**

The Committee on Program shall be appointed annually. This Committee shall, in conference with the President and Executive Secretary and with the approval of the Board of Trustees, prepare a complete program for the Annual Meeting.

The Committee shall submit a draft of the program to the Executive Secretary by May 15. The Executive Secretary shall send to the Chairman of the Publishing Committee a copy of the official program at least thirty (30) days before issue of the August Bulletin.

Section 11. **The Committee on Publications**

The Committee on Publications shall cause to be published, subject to the approval of the Board of Trustees, such periodicals, bulletins and such other material as shall assist in the general purposes of the Association. The Committee shall carefully check all periodicals publishing material on anesthesiology and on related fields and shall publish a list of articles of interest in each issue of the Bulletin, this to include: name of author, title of article, name of publication, date of publication.

This Committee shall publish each year a list (by states) of the members of the Association.

The Committee may be enlarged at the discretion of the Board of Trustees, upon proper presentation to the Board of Trustees that such enlargement shall facilitate the work of the Committee and shall further the interests of the Association.

No paper shall be published in the minutes, or in any magazine or paper, as a part of the transactions of the Association, except with the approval of the Board of Trustees. All papers read at any meeting of the Association or affiliated state associations shall become the property of the Association, and when so requested, the Board of Trustees (with permission of the author) may cause same to be copyrighted in the name of the Association; but unless prohibited by the Board of Trustees, the authors of all papers read at meetings of the Association or affiliated state associations, may cause the same to be published and if approved by the Board of Trustees, they may be published as a part of the transactions of the Association. No paper or magazine shall be entitled to the exclusive publication of any paper read before the members of the Association at any of its meetings, except by vote of the Board of Trustees.

Section 12. **Committee on Public Relations**

The Committee on Public Relations shall study the existing laws of the various states dealing with Anesthesiology and shall, at all proper times, report and make recommendations to the Board of Trustees for the protection of the professional rights of the members of the Association. This Committee shall be responsible for initiating, planning and conducting, subject to the approval of the Board of Trustees, a publicity program to the end that the allied fields and the public may be better informed concerning the Association, this to include the publicity given each Annual Meeting. The Committee shall assist with the establishment of a Committee on Public Relations in each affiliated state association and shall assist the officers of the state associations and these committees with the program on public relations.

Section 13. **Committee on Revision of By-laws**

The Committee on Revision of By-laws shall receive all proposed amendments to the By-laws of the Association from the members, report its findings and make its recommendations to the Board of Trustees for approval, and submit the proposed amendments with the Committee's recommendations for action at the Annual Meeting.

The Committee shall approve the constitution and by-laws of each state association applying for affiliation with the Association and further approve all proposed amendments to the constitution and by-laws of affiliated state associations for the purpose of keeping them harmonious with the By-laws of this Association.

Section 14. **Committee on Trust Fund**

The Committee on Trust Fund shall be composed of three members, one of whom shall be the Treasurer. This Committee shall be responsible for administering the monies of the Trust Fund in accordance with the rules and regulations concerning the Trust Fund. This Committee shall also promote interest in securing and shall endeavor to secure contributions for the Trust Fund.

ARTICLE IX

DUES

Section 1. **Scale of Dues**

Each member shall pay annual dues to the Association in accordance with his membership classification; except for members in unorganized states, a portion of these dues, as herein specified, shall be retained by the state association of the member.

Classification	*Dues*	*Retained by State*
Active Member	$12.00	$4.50
Inactive Member	5.00	2.00

Classification	*Dues*	*Retained by State*
Contributing Member	15.00	4.50
Sustaining Member	25.00	5.00
Institutional Member	25.00	5.00

Section 2. **Procedures for Payment**

A. Dues shall be payable in advance to the Association at the beginning of each fiscal year (September 1.)

B. The state associations shall be responsible for collecting all dues from their members, and shall send the required per capita dues to the Treasurer of the American Association of Nurse Anesthetists with the prescribed remittance sheet.

C. Members in unorganized states shall send their annual dues direct to the Treasurer of the American Association of Nurse Anesthetists.

Section 3. **Pro Rata Payment**

A newly accepted member shall pay annual dues as specified in Section 1 of this article if accepted to membership in the first six months of the fiscal year or one-half of the annual dues if accepted to membership in the second six months of the fiscal year. The first dues shall be payable within thirty (30) days after notification of acceptance to membership.

Section 4. **Waiving of Dues**

An Active or Inactive Member may without relinquishing any rights and privileges, be granted the waiver of dues for a fiscal year upon presentation to the Board of Trustees of documentary evidence of extended illness or of full time study for a school year, or of other extenuating circumstances.

Section 5. **Default in Payment**

A member of any classification whose dues are in default for more than six months of the current fiscal year shall be dropped from membership.

ARTICLE X

FISCAL YEAR

The Fiscal Year shall be from September 1 to August 31, inclusive.

ARTICLE XI

ANNUAL MEETING

Section 1. **Time and Place**

The Annual Meeting of the Association shall be held each year concurrently with that of the American Hospital Association at the time and place designated by the American Hospital Association.

The time and place of the Annual Meeting shall be announced in the Bulletin of the American Association of Nurse Anesthetists.

Section 2. **Quorum**

Seventy-five (75) members entitled to vote representing at least ten (10) states shall constitute a quorum at any meeting of the Association.

ARTICLE XII

NOMINATIONS AND ELECTIONS

Section 1. **Elections**

Elections shall be by ballot. A majority vote is necessary to elect.

Section 2. **The Ballot**

The Committee on Nominations shall present the ballot prepared as herein specified.

Section 3. **Nominations**

No Nominee shall be presented at the Annual Meeting either by the Committee on Nominations or from the floor without a statement of her qualifications and her consent to serve if elected.

Section 4. **Eligibility**

Only members in good standing shall be eligible to receive nominations and to vote.

ARTICLE XIII

OFFICIAL ORGAN

The Bulletin of the American Association of Nurse Anesthetists shall be the official publication of the Association and shall be issued at least four times a year.

ARTICLE XIV

ETHICS AND DISCIPLINE

If the conduct of any member shall appear to be in wilful violation of the Articles of Incorporation and By-laws of the Association or prejudicial to the Association's interests, the

Board of Trustees may, by the affirmative vote of two-thirds (2/3) of the entire Board of Trustees, suspend or expel such member. Before taking such action, a written copy of the charges must be served upon the member and an opportunity given her to be heard before the Board of Trustees, in defense. A motion to reconsider the suspension or expulsion of a member may be made at the next regular meeting of the Board of Trustees, but not thereafter.

ARTICLE XV

AMENDMENTS

A. The Articles of Incorporation and By-laws may be amended, modified, or abolished at any Annual Meeting by a two-thirds (2/3) vote of those present and qualified to vote, provided that notice of the proposed amendments, modifications, or resolution for abolishment has been placed in the hands of the Executive Secretary two (2) months prior to the Annual Meeting. Any such proposal to amend, modify or abolish shall be appended to the notice of the Annual meeting.

B. Standing Rules may be amended or rescinded by a two-thirds (2/3) vote unless notice was given at a previous meeting or in the call for the meeting, when they may be amended or rescinded by a majority vote.

ARTICLE XVI

PARLIAMENTARY AUTHORITY

"Robert's Rules of Order—Revised" shall be the authority for the Association where not stated in the Articles of Incorporation or By-laws.

STANDING RULES

1. *The order of Business at the Annual Meeting.*

Call to Order
Reading of Minutes
Roll Call
Report of Officers
Reports of Standing Committees
Reports of Special Committees
Unfinished Business
New Business
Announcements
Program
Adjournment

2. *Conduct of Examinations.*

The examination of candidates for membership shall be under the direct control of the Board of Trustees.

Each candidate approved by the Committee on Credentials shall be notified by the Executive Secretary to be ready for an examination.

The examinations shall be given twice a year in as many cities as the Board of Trustees may determine suitable for the purpose.

The examination shall be in charge of an Active Member of the American Association of Nurse Anesthetists, such member to be chosen by the Board of Trustees, and to be located in or near the town of residence of the candidate.

EXAMINATIONS

The examinations shall be covered in two (2) days and shall consist of:

A. An oral and practical examination.

The applicant shall be asked to carry out under the eye of the local examiner certain standard procedures bseides answering questions demonstrating her knowledge in anesthesiology.

B. A written examination.

The questions, both for the oral and written examinations, are formulated by the members of the Committee on Examinations and sent by the Executive Secretary under seal to each local examiner. Each candidate shall be given a number and the examination papers shall bear a number only. The local examiner shall mark the results of the oral and practical examination and in the presence of the examinee, shall seal in an envelope along with the answered written examination and shall send immediately to the Executive Secretary who in turn shall transmit them to the Committee on Examinations.

Each member of the Committee on Examinations shall examine a part of the written examination of each applicant and allocate marks for each question in accordance with predetermined values. Each member of the Committee on Examinations shall transmit these marks in writing to the Executive Secretary separately from those of each other member. The Executive Secretary shall determine the grade obtained by each candidate by taking the average of the marks.

The practical examination and the written examination have equal value and a passing grade of 70% must be received in each.

Any candidate who fails to pass the examination may be re-examined once within one calendar year from the date of examination without payment of an additional fee. Should the candidate again fail to pass the examination, further examinations may be granted on payment of an additional fee of fifteen dollars ($15.00).

The Executive Secretary shall notify the candidates of the results of the examinations, usually in about ninety (90) days after taking the examinations. Those who pass the examinations shall be issued a membership card on payment of the annual membership dues which shall be prorated for the year in which the applicant becomes a member.

The examination fee shall be fifteen dollars ($15.00) due and payable within (30) days after notification by the Executive Secretary of approval by the Credentials Committee. *No fees are returnable.*

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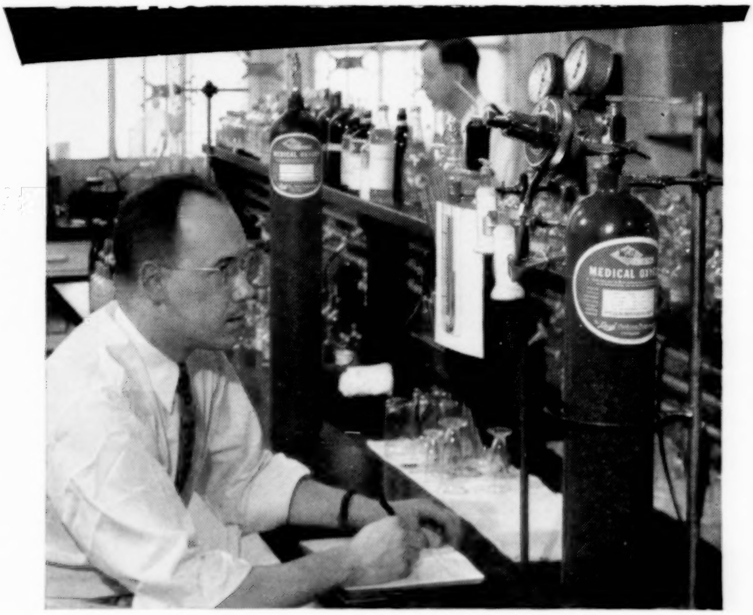

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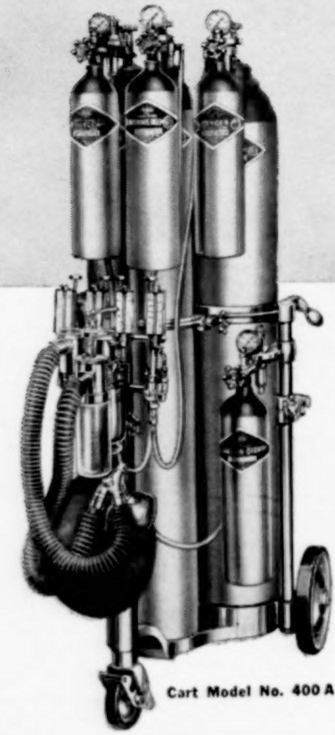

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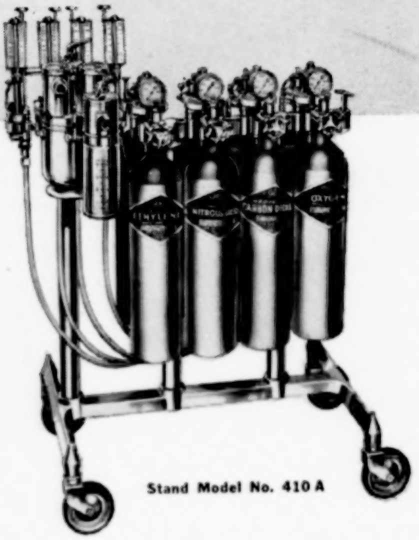

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